OECD Economics Department Working Papers No. 961

Improving Health Outcomes and System in Hungary

Mehmet Eris

https://dx.doi.org/10.1787/5k98rwqj3zmp-en

OECD

Unclassified **ECO/WKP(2012)38**

Organisation de Coopération et de Développement Économiques
Organisation for Economic Co-operation and Development

23-May-2012

English - Or. English

ECONOMICS DEPARTMENT

ECO/WKP(2012)38
Unclassified

IMPROVING HEALTH OUTCOMES AND SYSTEM IN HUNGARY

ECONOMICS DEPARTMENT WORKING PAPERS No. 961

by Mehmet Eris

JT03322123

Complete document available on OLIS in its original format

English - Or. English

ABSTRACT/RESUMÉ

Improving health outcomes and system in Hungary

Based on the latest available data up to 2009, the health status of the Hungarian population is among the poorest in the OECD, including countries with a similar level of income per capita. While this outcome has been driven by the socioeconomic status of the population and lifestyle risks, it also reflects the relatively limited effectiveness of the health care system, for which relatively low levels of resources have been available: total health spending amounted to 7.4% of GDP in 2009, lower than in other OECD countries with similar levels of income per capita. Although the health care system is generating significant health care outputs, such as doctor's consultations and hospital discharges, problems with the quality of health services and the need to reallocate resources where they would contribute most to health outcomes suggest a need for reforms. Reforms are needed to address immediate challenges to stem the outflow of health care workers, reorganise care capacities, align incentives faced by providers and patients, and improve access to health care services. The medium–term challenge for the health care system is to increase available resources to significantly enhance health outcomes. As there are relatively weak mechanisms to regulate quality and prevent unnecessary care, further improving efficiency is also of key importance.

This Working Paper relates to the 2012 *OECD Economic Survey of Hungary* (www.oecd.org/eco/surveys/hungary)

JEL classification: I18, I14, I11

Keywords: Health care system, access to health care, spending efficiency, cost effectiveness, Hungary

****

Améliorer les résultats et le fonctionnement du système de santé en Hongrie

Sur la base des données disponibles jusqu'en 2009, la situation de la population hongroise en matière de santé figure parmi les moins satisfaisantes de l'OCDE, même en tenant compte des pays où le revenu par habitant est similaire. Si ce résultat s'explique en partie par la situation socio-économique de la population et par les risques inhérents à son style de vie, il découle également du manque d'efficacité relatif du système de santé, dont les ressources sont assez faibles : en 2009, le total des dépenses de santé représentait 7.4 % du PIB, soit moins que dans les autres pays de l'OCDE présentant des niveaux similaires de revenu par habitant. En dépit d'un nombre important de prestations, dont témoignent, par exemple, les consultations médicales et les certificats de sortie des hôpitaux, les problèmes de qualité des services de santé et la nécessité d'une réaffectation des ressources vers des secteurs où elles pourraient contribuer au mieux à l'amélioration des résultats de santé suggèrent un besoin de réformes. Celles-ci sont nécessaires pour faire face aux défis immédiats : endiguer l'exode des professionnels de la santé, réorganiser les capacités de soins, harmoniser les incitations proposées aux prestataires et aux patients, et améliorer l'accès aux services de santé. À moyen terme, l'enjeu consiste à augmenter les ressources disponibles, de manière à renforcer sensiblement les résultats en matière de santé. Compte tenu de la faiblesse relative des mécanismes permettant de réglementer la qualité et d'éviter les prestations superflues, il est également crucial d'améliorer davantage l'efficience du système.

Ce Document de travail se rapporte à *l'Étude économique de l'OCDE de la Hongrie*, 2012 (www.oecd.org/eco/etudes/hongrie).

Classification JEL: I18, I14, I11

Mots-clés: Système de santé, accès aux soins de santé, l'efficacité des dépenses, efficacité-coût, Hongrie

TABLE OF CONTENTS

Tables

Figures

Boxes

IMPROVING HEALTH OUTCOMES AND SYSTEM IN HUNGARY

by Mehmet Eris[1]

Health outcomes are an important determinant of well–being and, along with the efficiency of the health system, are intricately linked to economic outcomes. Healthy individuals are likely to enjoy longer and more productive lives and invest in their human capital, thus boosting the growth prospects of an economy. By contrast, in Hungary, excess mortality among the working–age population, driven mainly by cancer mortality, has been a drag on growth. Rising health care spending levels has become a cause for concern in the aftermath of the crisis, particularly in view of long–term pressures stemming from population ageing and long–term cost pressures. Although public spending on health in Hungary, at slightly above 5% of GDP in 2009 (total spending reached 7.4% of GDP), is not high in international comparison, limited fiscal space and the need to improve the delivery of health care services have heightened the urgency for reforms. In the following sections, after providing an overview of the health status of the population and its determinants (including those not directly associated with the health system), the performance of the health system is assessed in terms of outputs, including the number of doctor's consultations and hospital discharges, and health outcomes, as measured by mortality and longevity indicators. The final section suggests various reforms of the health system with potentially large impacts on its efficiency and cost–effectiveness.

Health outcomes are generally poor

The overall health status of the Hungarian population is weak

Existing mortality and longevity indicators consistently show that there is a wide gap between the health outcomes in the majority of OECD countries and Hungary. Both health-adjusted[2] and raw life expectancies at birth are among the lowest across the OECD and about six years less than OECD averages (Figure 1). In terms of potential years of life lost (PYLL)[3], Hungary was ranked among the countries with the highest number in the OECD. Infant mortality was also above the OECD average in 2009 (Table 1).

---

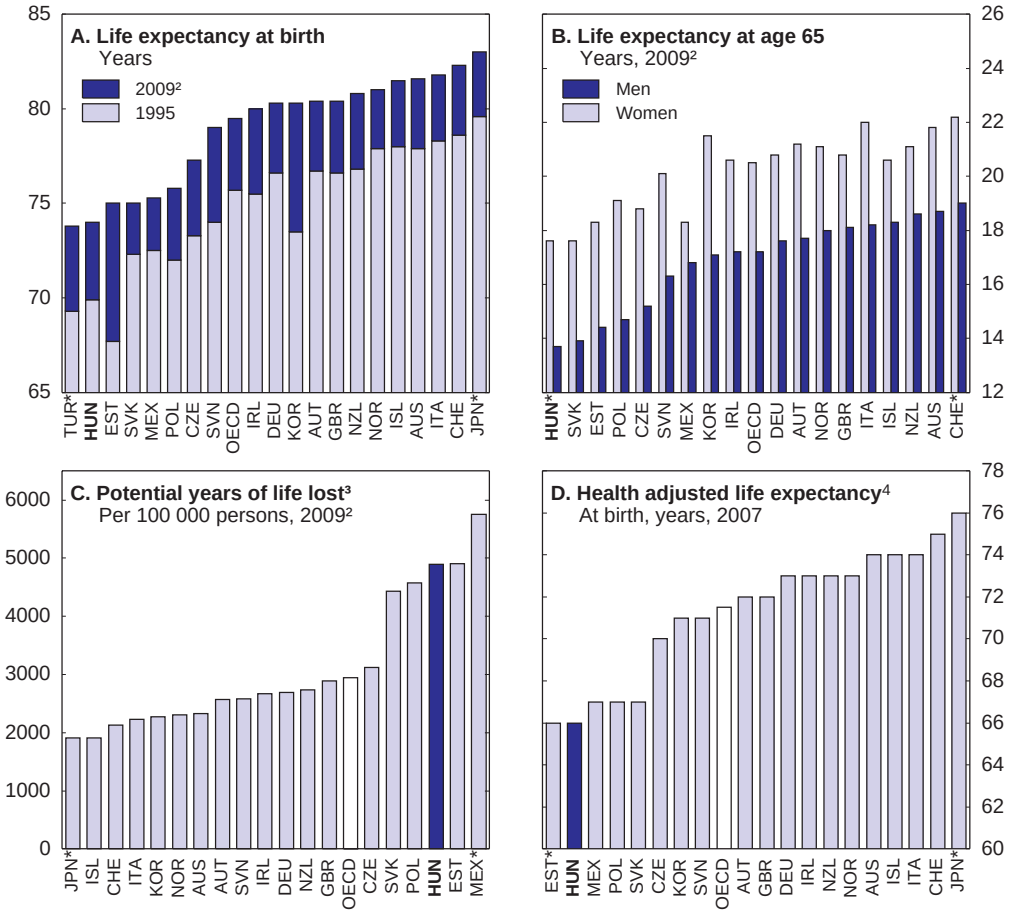
1. Mehmet Eris is an economist at the Hungary/Slovenia Desk in the Economics Department of the OECD. This working paper was originally published as Chapter 4 of the 2012 *OECD Economic Survey of Hungary*, published under the authority of the Economic and Development Review Committee (EDRC). The author would like to thank, without implicating, Michael Borowitz, Isabelle Joumard, Szabolcs Szigeti, Mark Pearson, Valerie Paris, Yuki Murakami, Christophe Andre, Rafal Kierzenkowski, Pierre Beynet, Robert Ford and Andrew Dean for valuable comments on earlier drafts. Special thanks go to Desney Erb for technical assistance.

2. This indicator summarises the number of years expected to be lived in "full health" and is produced by the World Health Organization.

3. Potential years of life lost is a measure of premature mortality, calculated as the number of years lost before the age of 70. The indicator is also adjusted by excluding death that can be attributed to "external causes", such as land transport accidents, accidental falls, assaults and suicides.

Similarly, Hungary was among poorly performing countries in terms of indicators that, unlike longevity indicators, try to account for quality of life improvements above and beyond gains in life expectancy. Based on health–adjusted life expectancy (HALE) and disability–adjusted life expectancy (DALE), Hungary ranks at the bottom of OECD countries. The gap relative to the OECD average in health–adjusted life expectancy was wider than that in life expectancy at birth, reflecting the prevalence of diseases or disability in Hungary (Joumard *et al.*, 2010).

Figure 1. **Life expectancy indicators**[1]



1. The OECD aggregate is an unweighted average of data available. An asterisk indicates the lowest or highest value amongst OECD countries.
2. Or latest year of data available (2005-09); see source databases for detail of country coverage.
3. Adjusted series calculated excluding deaths from land transport accidents, accidental falls, suicides and assaults. Age group 0 to 69.
4. Number of years expected to be lived in what might be termed the equivalent of "full health".

Source: OECD (2011), "OECD Health Data: Health Status", *OECD Health Statistics* (database), December and WHO (2011), *Global Health Observatory Data Repository*, World Health Organisation, May.

The transition process had a marked influence on health status in Hungary. In particular, mortality rose among middle–aged men, who were more prone to mortality and morbidity in the economically tumultuous earlier periods of the transition process (Kopp, 2007). Life expectancy at birth stalled for women and decreased by around a year and a half for men between 1988 and 1993 and has seen a steady increase since then, largely on account of a decrease in the cardiovascular mortality rate. While this improvement is considered as a beginning of a new phase (Józan, 2009), the gap in life expectancy at birth relative to other OECD countries remains sizable. Also, the increasing risks of mortality from cardiovascular and respiratory diseases and cancer cast doubt on a rapid closing of the gap relative to better

performing OECD countries. Non–communicable diseases are the leading cause of morbidity and death in Hungary. In particular, ischemic heart diseases, stroke and cancer mortality rates were among the highest in the OECD in 2009 (Table 1). By contrast, the incidence of communicable diseases is very low, reflecting the wide coverage of vaccination programmes, along with a system that allows effective and timely intervention in the case of outbreaks. The incidence rates of measles, pertussis and hepatitis B are among the lowest in the OECD.

Table 1. **Mortality rates for infants and by leading causes**

2009 or latest year available[1]

	Infant mortality (deaths per 1 000 live births)	Leading causes of mortality (deaths per 100 000 population)				
		Ischemic heart disease	Cerebrovascular disease (stroke)	Lung cancer	Other types of cancer	Liver diseases and cirrhosis
Hungary	**5.1**	**204**	**87**	**60**	**166**	**37**
Australia	4.3	74	35	29	116	5
Austria	3.8	92	32	29	121	14
Czech Republic	2.9	161	75	37	150	15
Estonia	3.6	192	63	31	146	16
Germany	3.5	93	40	32	125	13
Iceland	1.8	77	35	37	113	2
Ireland	3.2	98	39	38	138	7
Italy	3.7	58	44	33	124	9
Korea	3.5	28	57	32	111	11
Mexico	14.7	85	43	10	81	35
New Zealand	4.7	98	43	31	136	3
Norway	3.1	62	36	32	118	3
Poland	5.6	97	73	47	146	15
Slovak Republic	5.7	255	91	33	153	23
Slovenia	2.4	61	63	35	154	22
Switzerland	4.3	62	27	28	111	. .
United Kingdom	4.6	77	41	38	127	11
OECD[2]						
Average	4.4	85	48	33	126	12
High	14.7 (MEX)	255 (SVK)	91 (SVK)	60 (HUN)	166 (HUN)	37 (HUN)
Low	1.8 (ISL)	26 (JPN)	25 (ISR)	10 (MEX)	81 (MEX)	2 (ISL)

1. The latest year varies from 2007 to 2009 for infant mortality and from 2005 to 2009 for causes of mortality.
2. The average is an unweighted average of latest year of data available; see source database for detail of country coverage.

Source: OECD (2011), "OECD Health Data: Health Status", *OECD Health Statistics* (database), December.

Inequality in health outcomes is high

The health status of the Hungarian population is not only poor on average, but also widely disparate. Health inequality, as measured by the standard deviation of mortality ages older than ten, was around 15 years, among the highest in the OECD in 2007 (Joumard *et al.*, 2010). The gap between the regions with the highest and lowest health-adjusted life expectancies at birth stood at 8.1 years for men and 7.7 years for women in 2008, reflecting large geographical and socio–economic inequalities (HCSO, 2009). Looking at geographical disparities at the level of micro–regions over the period 2000-03, Kaposvari and Vitrai (2008) find that the all–cause mortality rate in the worst performing micro–region[4] (*kistérség*) was over two times higher than the one with the lowest rate. They also find that while around 70% of the variation across micro–regions is attributable to the demographic characteristics and

4. Micro-regions in Hungary are statistical sub-regions. There are 149 micro-regions in total and Budapest is not included in the system.

socioeconomic status of the inhabitants, the remaining 30% is explained by the level of development and share of the Roma population.

While official national data are not available for the health status of the Roma minority (official data do not mention ethnic groups), there is some evidence that their health status is considerably poorer than the rest of the population. The average life expectancy of the Roma is reported to be ten years shorter than the rest of the population (Council of Europe, 2009). Various independent surveys find that the self-reported health status of the Roma is much worse than the rest of the population, even compared to the lowest income quartile of the general population (Kósa *et al.*, 2007). However, the Roma did not have a significantly higher probability of reporting chronic conditions once socio–economic status is controlled for (Masseria *et al.*, 2010). In addition, infant mortality rates in the Roma population are believed to be rather high, constituting another factor that significantly lowers life expectancy at birth relative to the rest of the population (Ádány, 2008).

Poor health outcomes are driven by factors beyond the health care provided

Health status depends both on health system interventions and other non–medical determinants, such as lifestyle, environmental factors, and socio–economic status. It is crucial to discuss to what extent poor health outcomes are not directly attributable to medical care.

Lifestyle–related risk factors

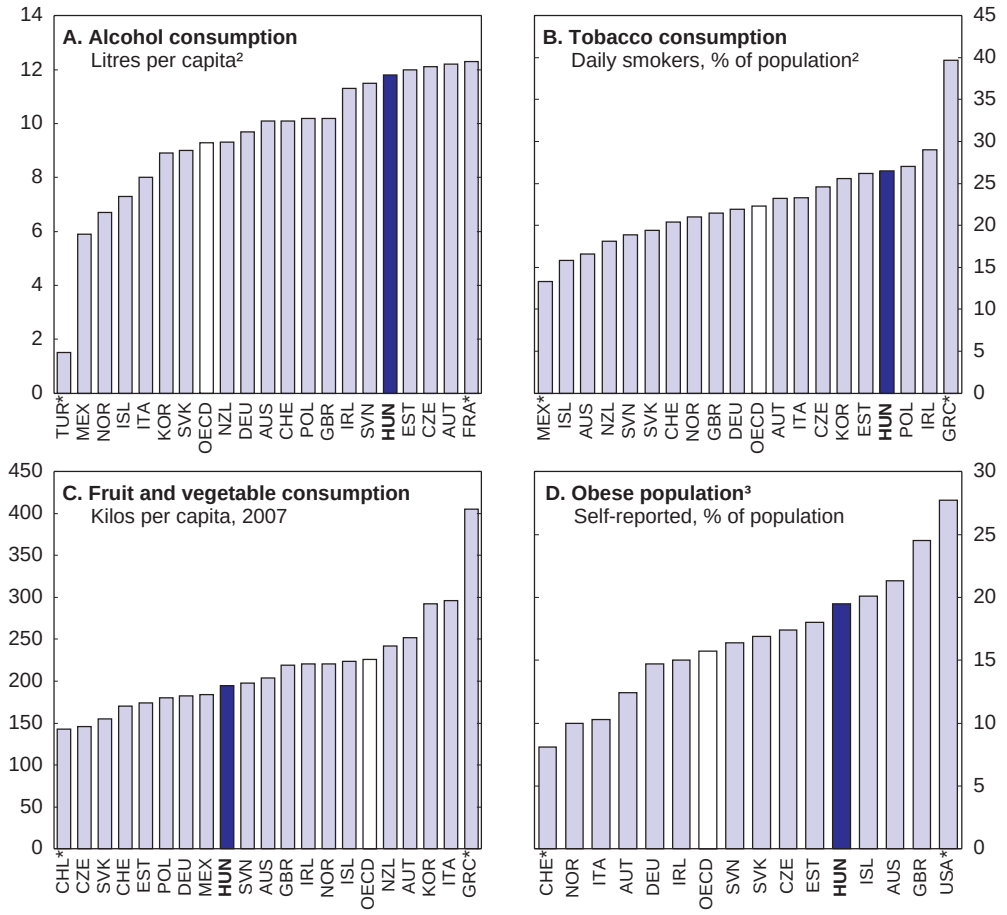
Lifestyle–related risk factors, particularly smoking, unhealthy diet and lack of physical activity, are prevalent in Hungary, underscoring the need for comprehensive public health and prevention programmes (Figure 2). Hungarians, notably men, make unhealthy life–style choices along several dimensions at once, leading to disproportionately damaging effects on health outcomes. In 2009, Hungary reported one of the highest levels of alcohol consumption (at around 12 litres per adult versus the OECD average of 9.3 litres), which is directly associated with higher risks of stroke, heart and vascular diseases, liver cirrhosis and certain types of cancer. The types of alcohol traditionally consumed (notably homemade spirits) and the pattern of drinking (with a high share of binge drinkers) are also additional risk factors, making alcohol consumption particularly detrimental to health in Hungary (Szűcs *et al.*, 2005). The European Health Interview Survey conducted in 2009 revealed that 4.6% of the respondents were reportedly heavy drinkers. Such behaviour was more prevalent among male respondents, for whom the proportion of heavy drinkers reached 8.3%, and remained around 1% for women. Tobacco consumption, which is partly behind the world's highest lung cancer mortality rate among Hungarian men, has declined markedly since the mid-1990s, but remains at a high level, exceeding the OECD average. The government has recently taken steps to curtail tobacco and alcohol consumption by increasing excise taxes in November 2011, and introducing a smoking ban in public places, effective from 1 January 2012.

Unhealthy diet, high intake of animal fat, cholesterol, salt, a low intake of vegetables, minerals and dietary fibre, compounded with low physical activity (only about 20% of men and 15% of women aged 15-64 exercise regularly) lead to obesity, high blood pressure and nutritional deficiencies. Around two–thirds of Hungarian men and half of women are overweight or obese (Figure 2). High blood pressure affects close to 30% of those aged 25-64 years and type two diabetes affects approximately 10% of the population (HCSO, 2009). There is also evidence that smoking and unhealthy eating habits are particularly prevalent among the Roma minority, with such behaviour being 1.5 to 3 times more common among the Roma than the lowest income quartile of the general population (Kósa *et al.*, 2007). The authorities introduced new legislation, which was adopted by Parliament in July 2011 and took effect in September 2011, taxing a range of pre–packaged foods with high salt and sugar content (mainly targeting chips, chocolates, energy drinks and the like). The authorities argued that the main motivation behind the tax was to promote healthy eating habits and to make those who insist on making unhealthy lifestyle

choices contribute more to the health care system, while also stating that the proceeds from this tax will be used to finance the health care system.

Figure 2. **Health risks**

2009 or latest year available[1]



1. The latest year varies from 2005 to 2010; see source database for detail of country coverage. The OECD aggregate is an unweighted average of data available. An asterisk indicates the lowest or highest value amongst OECD countries.
2. Population aged 15 and over.
3. Luxembourg, Slovak Republic and United Kingdom figures are based on health examination surveys, rather than health interview surveys.

Source: OECD (2011), "OECD Health Data: Non–Medical Determinants of Health", *OECD Health Statistics* (database), December and OECD (2010), *OECD Health at a Glance: Europe 2010*.

Environmental factors

Water, soil, noise and air pollution also contribute to poor health. Air pollution, mainly from vehicle emissions, and the pollution of surface waters from geologically–based arsenic are major concerns in Hungary. Non–organic arsenic is a potent human carcinogen and toxicant, to which people are exposed mainly via drinking water and food. Arsenic levels in drinking water in Eastern Hungary were well above EU limits (Lindberg *et al.*, 2006). In fact, arsenic levels had exceeded EU and World Health Organization (WHO) guidelines by up to 30 times in 40% of drinking water supply. A programme to improve drinking water quality in line with the EU directive has been underway since 2001, targeting around 900 settlements and more than 2.5 million residents of the country (SUMANAS, 2005). By 2010, only three settlements,

with a total of 1 300 residents, are exposed to drinking water with arsenic levels highly exceeding the EU limit value. The affected population is supplied with healthy drinking water from alternative sources. The red sludge disaster in 2010, caused by a collapsed industrial toxic waste reservoir, exacerbated such risks. The elevated levels of arsenic and mercury in the red sludge could pose serious health risks for the affected population, especially if the toxic material has entered into the food chain.

Socio–economic factors

Poor social and economic conditions affect health throughout life, with people further down the social ladder running greater risks of serious illness and premature death compared with their counterparts in the highest level. Poverty–stricken regions and socio–economic groups suffer disproportionately from chronic conditions and have considerably shorter life expectancy. Some of the differences across regions are driven by the concentration of disadvantaged population groups in certain regions and individuals from those groups tend to be mostly unemployed and to live in unfavourable conditions, including without running water and sewerage (Kósa, Daragó and Ádány, 2009). Kertesi (2000) relates the poor health status of the Roma to the high share of them working in occupations causing health damage.

The health system has been ineffective at improving the health status

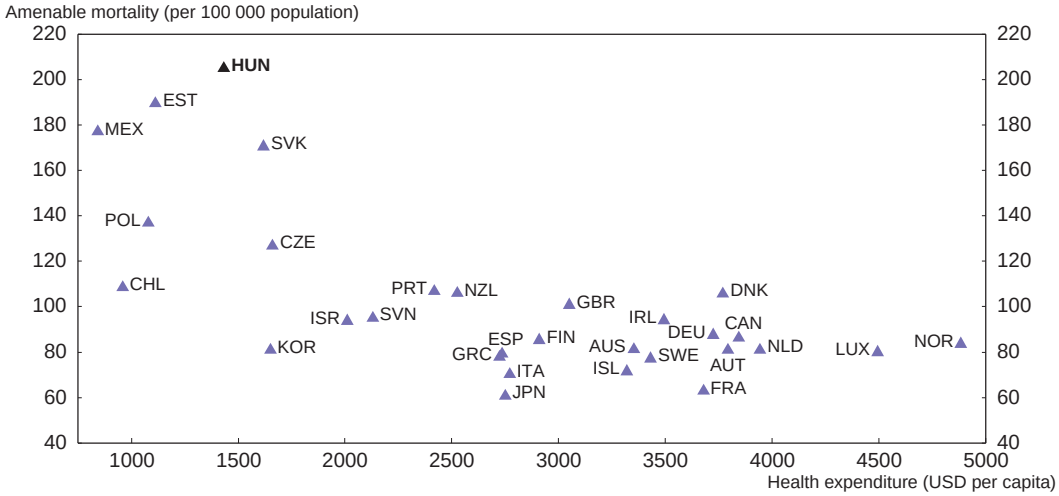
Hungary has managed to produce high volumes of health care outputs, as measured by the number of doctors' consultations and hospital discharges, despite employing a relatively modest amount of resources (see below). In 2009, Hungary spent around 7.5% of its GDP on total health measures, including both public and private spending on medical goods and services, public health and prevention programmes, administration and capital investment in health care infrastructure. In per capita terms, total health spending was close to 50% of the OECD average in 2009, evaluated at purchasing power parities. Over the period 1998-2008, real health expenditure per capita had grown on average by around 4% annually, well below some similar countries, such as the Slovak Republic (8.5%), Estonia (7.5%) and Poland (6%) (OECD, 2011).

However, various estimates obtained using different approaches suggest that Hungary has one of the least efficient health care systems in terms of health outcomes, as measured by various mortality and longevity indicators, in the OECD. Based on panel regressions, Joumard *et al.* (2010) find that the gap between the average health status of Hungarians and the OECD average is largely explained by the limited effectiveness of the system and relatively low level of health care resources. Efficiency estimates derived from Data Envelopment Analysis (DEA) also corroborate the panel data evidence. The conclusion is also fairly robust to the inclusion of different input measures and to alternative definitions of health outcomes. Also, Hungary performs very poorly relative to the countries that broadly share similar health policies and institutions (Joumard *et al.*, 2010). A similar analysis carried out in OECD (2008a) corroborates this finding and reveals that the efficiency of the system has deteriorated substantially in absolute and relative terms between 1990 and 2008.

Amenable mortality, which refers to deaths that could be avoided by timely and effective medical care, could be another indicator used to shed light on the impact of the health care system on the population health status. Amenable mortality takes into account premature deaths for a set of diseases, for which effective health interventions are deemed to exist and might prevent deaths before a certain age limit (usually 75, though sometimes lower). Gay *et al.* (2011) provide amenable mortality estimates for 31 OECD countries by comparing two widely–used lists, prepared by Nolte and McKee (2008) and Tobias and Yeh (2009). Amenable mortality rates in Hungary are among the highest in the OECD and about twice as large as the OECD average for both men and women (Figure 3).

Figure 3. **Mortality amenable to health care and health expenditure**[1]

2007[2]



1. Amenable mortality based on Tobias and Yeh's list, age standardised rates. See J.G. Gay *et al.* (2011) for details of causes of death covered by the list. Health expenditure is in US dollars at current purchasing power parities. The United States is excluded from this figure as an outlier (health expenditure of 7 437 USD per capita).
2. Or latest year available for amenable mortality (2003-07).

Source: J.G. Gay *et al.* (2011), "Mortality Amenable to Health Care in 31 OECD Countries: Estimates and Methodological Issues", *OECD Health Working Papers*, No. 55 and OECD (2011), *OECD Health Statistics* (database), December.

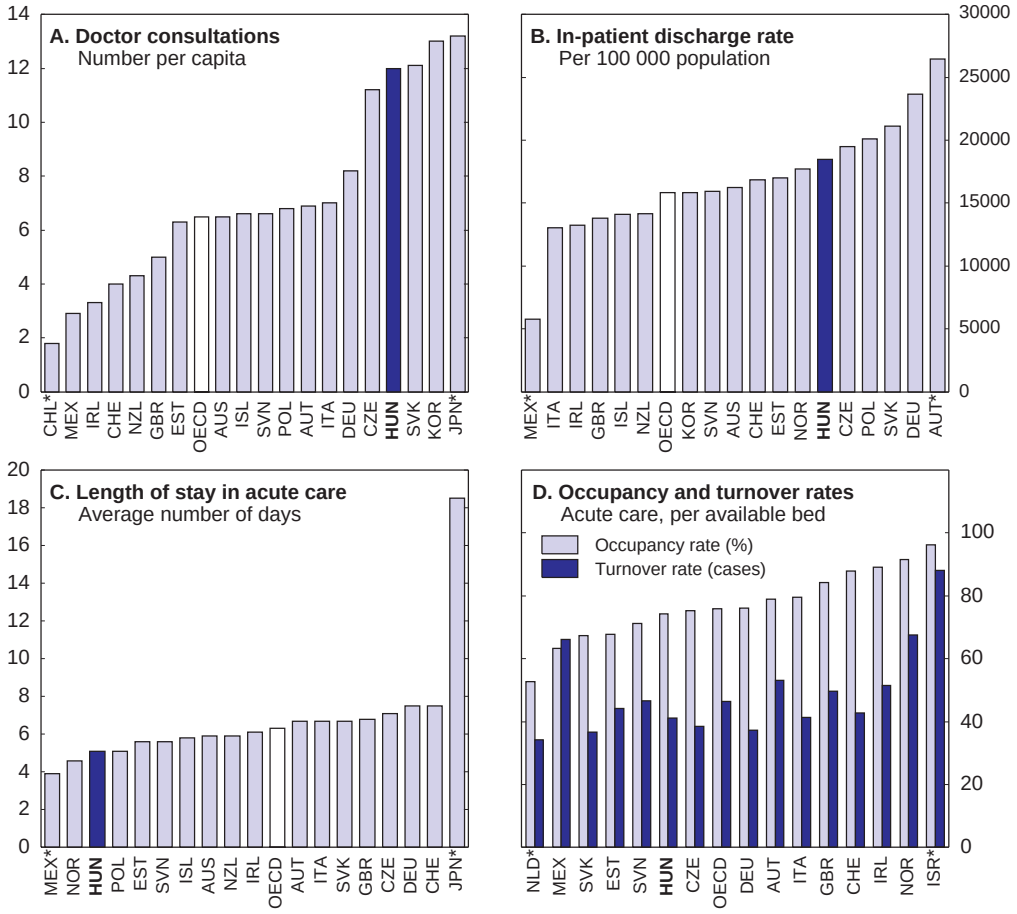
A high utilisation of health care services with limited resources

The universal social insurance model of Hungary has translated into relatively intense utilisation of health care services, despite relatively scarce resources (see Annex for details of the flow of funds in the system). In 2009, the number of consultations with doctors was 12 per person, well above the OECD average of 6.5 (Figure 4). While the number of practicing physicians per thousand population in Hungary was around the OECD average at three in 2009, the number of nurses and midwives, was low at close to six per thousand population in 2009, compared with the OECD average of around nine (Figure 5). Nurses have an increasingly crucial role in providing health care services both in hospital settings and primary care, notably for chronic care. In addition to nurses, caring personnel, such as nursing aides, play an important role in providing health care. Some countries, such as Denmark, the Netherlands and Norway rely on such personnel to a great extent, while in Hungary their role appears to be limited, as reflected in their comparatively low numbers at 2.5 per thousand population in 2008.

The total number of hospital discharges, similar to the numbers on consultations, was also high, exceeding the OECD average by nearly 20% in 2009. Consistent with the general trend of declining numbers of hospital beds, the number of hospital beds per thousand population in Hungary came down to around seven in 2009 from nearly nine in 1996, owing to cost–containment policies targeting excess capacity in the hospital sector and the advent of new medical technologies allowing greater reliance on day care rather than long hospitalisation. Nevertheless, the number of hospital beds remained above the OECD average of five per thousand in 2009 (OECD, 2011; Figure 5). The average lengths of stay in acute and inpatient care were among the lowest in the OECD in 2009. Occupancy and turnover rates in acute care, however, were lower, pointing to excess capacity in inpatient care (Figure 4). Hospitals in Hungary tend to be large, with the number of hospitals per million population standing at 17.5 in 2008, compared with the OECD average of 30.1, old (mean age of 50 years in 2004), and to own obsolete equipment, based on a

Figure 4. **Health care consultations and hospital resource use**

2009 or latest year available[1]



1. The latest year varies from 2005 to 2009; see source database for detail of country coverage. The OECD aggregate is an unweighted average of data available. An asterisk indicates the lowest or highest value amongst OECD countries.

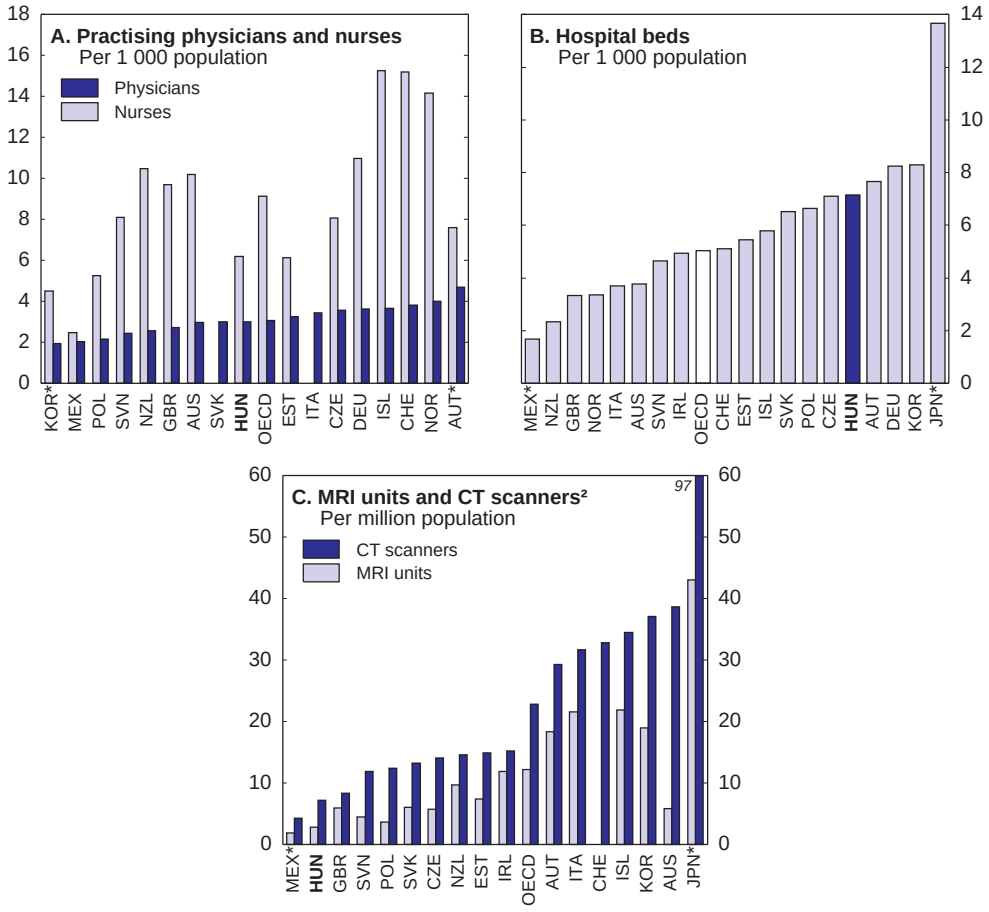
Source: OECD (2011), "OECD Health Data: Health Care Utilisation", *OECD Health Statistics* (database), December.

survey conducted in 2004 with the participation of around half of all hospitals in Hungary (Papp and Előry, 2004). They also tend to be spread across multiple sites, with the average of around 20 buildings per hospital. Local governments have owned a great majority of hospital beds (around 80% in 2009) and health care investments have generally been guided by local economic interests, leading to poor coordination and wasteful parallel supply of facilities and equipment. The central government has, however, recently taken over county and the Budapest area hospitals, effective from 1 January 2012.

The penetration of high–technology medical equipment is low in Hungary, while the gap in the number of examinations conducted using such equipment with respect to the OECD average is not as wide. The number of magnetic resonance imaging (MRI) units was just below three per million population, less than one fourth of the OECD average and among the lowest across OECD countries in 2009. The number of computed tomography (CT) scanners was also low at around seven per million population, compared to the OECD average in excess of 20 (Figure 5).

Figure 5. **Health care resources**

2009 or latest year available[1]



1. The latest year varies from 2006 to 2010; see source database for detail of country coverage. An asterisk indicates the lowest or highest value amongst OECD countries. The OECD aggregate is an unweighted average of data available.
2. Magnetic Resonance Imaging (MRI) units and Computed Tomography (CT) scanners.

Source: OECD (2011), "OECD Health Data: Health Care Resources", *OECD Health Statistics* (database), December.

The allocation of resources is skewed towards some areas

Uneconomic utilisation of hospitals and specialist care seems to prevail in the Hungarian health care system, as indicated by the excess capacity in the hospital sector and the disproportionately high share of specialists in the health workforce. Patients still tend to visit a hospital specialist directly even in cases where cheaper and clinically effective alternatives are available. In 2009, curative and rehabilitative care provided to inpatients and outpatients accounted for around half of current health spending in Hungary, with a slightly higher share of spending on inpatients (Table 2). While the share of inpatient care has dropped slightly and that of outpatient care increased since the 1990s, there was no clear systematic approach and trend (Gaál *et al.*, 2011). Changes in medical practice, new technologies and more efficient allocation of resources can all affect the balance between different types of care delivery, such as inpatient, day, outpatient and home care.[5] In many countries, day care has accounted for an increasing share of total

5. Day care comprises health care services delivered to patients who are formally admitted to hospitals, ambulatory premises or self standing centres but with the intention to discharge the patient on the same day.

spending on curative care in recent years, while its scope in Hungary remains limited, with spending on day care as a share of total rehabilitative care amounting to 2% in 2008, half of the EU average. The share of day care discharges in all hospital discharges was also low at around 5.5% in 2008, against the EU average of slightly above 20% (European Commission, 2010). Another indication of unnecessary recourse to hospitalisation is the share of cataract surgeries carried out as day cases, which was only 24% in 2009, compared to over 95% in many OECD countries, including Denmark, Estonia, Finland, Netherlands, Norway, Spain and Sweden. Caution is required in making cross–country comparisons of available data due to the incomplete coverage of day surgeries in several countries. The data for Hungary include only interventions carried out in hospitals, as in Ireland and Poland. In addition, preliminary data suggest that the share of cataract surgeries carried out as day cases has increased substantially by 2011. Long–term care (LTC) capacities are also considered insufficient to meet the needs of the ageing population and growing demand in Hungary (Gaál *et al.*, 2011). In 2009, the share of LTC in total current health expenditure was less than 5%, while the share in the average OECD country was nearly 15% (Table 2).

Screening and prevention policies do not appear to be adequately utilised in Hungary. For instance, mortality from cervical cancer is considered to be largely preventable. Regular screening could help identify premalignant lesions, which can be treated even before turning into cancer, or diagnose early stages of cervical cancer, greatly increasing survival rates. In 2009, only around 25% of Hungarian women aged 20-69 were screened for cervical cancer through the organised cervical screening programme, compared with the OECD average of close to 60%. The rate exceeded 75% in Austria, France, Norway, Sweden and the United Kingdom. In 2008, the relative cervical cancer mortality rate in Hungary at almost six per 100 000 women was one of the highest in the OECD. The situation is better in mammography screening (the screening rate at around 50% for women aged 50-69 is only slightly below the OECD average of approximately 55% in 2008), and breast cancer mortality rates have declined significantly since 1998 (OECD, 2011).

Spending on pharmaceuticals appears too high

Spending on pharmaceuticals accounts for a significant proportion of total health spending in Hungary and has grown rapidly. The total pharmaceutical bill in Hungary reached nearly 2.5% of GDP in 2009, among the highest in the OECD (Figure 6). In per capita terms, spending on pharmaceuticals was close to EUR 380, evaluated at purchasing power parities, in 2008, slightly above the EU average. The share of pharmaceuticals in 2009 accounted for around 33% of total health spending, with the share of out-of-pocket spending in total pharmaceuticals reaching 40%. Some experts claim that this share may be artificially high due to the inclusion of pharmaceuticals that are normally administered in an institutional setting and should not be included in pharmaceutical spending. Reportedly, once this correction is made, the share could be up to 10 percentage points lower. It is also claimed that low wages in the health sector depress total spending and lead to a higher share of pharmaceutical spending than otherwise would be the case. Public funds cover the remaining 60% of pharmaceutical expenditure, much less than for physician and hospital services (OECD, 2011). This is due to higher co–payments for pharmaceuticals under the public insurance scheme, which has been used as a measure to shift some of the costs to patients and contain pharmaceutical spending.

An outpatient is not formally admitted to a facility (physician's private office, hospital outpatient centre or ambulatory care centre) and does not stay overnight.

Table 2. **Health care expenditure for selected types of care**

Expenditure per capita in US dollars at current purchasing power parities, 2009 or latest year available[1]

	Total expenditure on health	Inpatient care[2]	Out-patient care[3]	Long-term and home care[2]	Medical goods[4]	Prevention and public health	Administration and insurance	Investment on medical facilities
Mexico	918	. .	358	. .	250	. .	99	. .
Estonia	1 393	381	473	61	359	31	32	56
Poland	1 394	426	390	94	344	30	18	93
Hungary	**1 511**	**371**	**390**	**60**	**556**	**64**	**19**	**34**
Korea	1 879	421	612	178	450	58	65	95
Slovak Republic	2 084	413	639	21	725	96	67	123
Czech Republic	2 108	618	723	73	472	55	70	67
Slovenia	2 579	714	723	211	572	92	104	163
New Zealand	2 983	743	1 002	507	317	200	214	. .
Italy	3 137	. .	989	. .	572	19	16	117
Australia	3 445	1 210	1 251	13	606	69	118	179
United Kingdom	3 487	. .	. .	. .	. .	. .	. .	177
Iceland	3 538	944	1 166	676	632	51	68	. .
Ireland	3 781	. .	. .	. .	. .	. .	. .	172
Germany	4 218	1 126	1 167	574	834	149	222	146
Austria	4 289	1 458	1 114	566	708	72	147	245
Switzerland	5 144	1 457	1 683	995	626	130	253	. .
Norway	5 352	1 435	1 534	1 400	604	113	42	224
OECD[5]								
Average	3 233	904	1 100	456	586	103	115	150
High	7 960	1 589	3 623	1 400	1 070	303	532	414
	(USA)	(NLD)	(USA)	(NOR)	(USA)	(CAN)	(USA)	(LUX)
Low	902	371	358	13	250	13	16	34
	(TUR)	(HUN)	(MEX)	(AUS)	(MEX)	(ISR)	(ITA)	(HUN)

1. The latest year varies from 2006 to 2009.
2. Inpatient care covers only curative and rehabilitative inpatient care. Long–term nursing in patient care is included with home health care.
3. Hospital and non–hospital outpatient care, same–day care and ancillary services.
4. Durable and non–durable goods including pharmaceuticals and therapeutic appliances.
5. The average is an unweighted average of the latest year of data available; see source database for detail of country coverage.

Source: OECD (2011), "OECD Health Data: Health Expenditure and Financing", *OECD Health Statistics* (database), December.

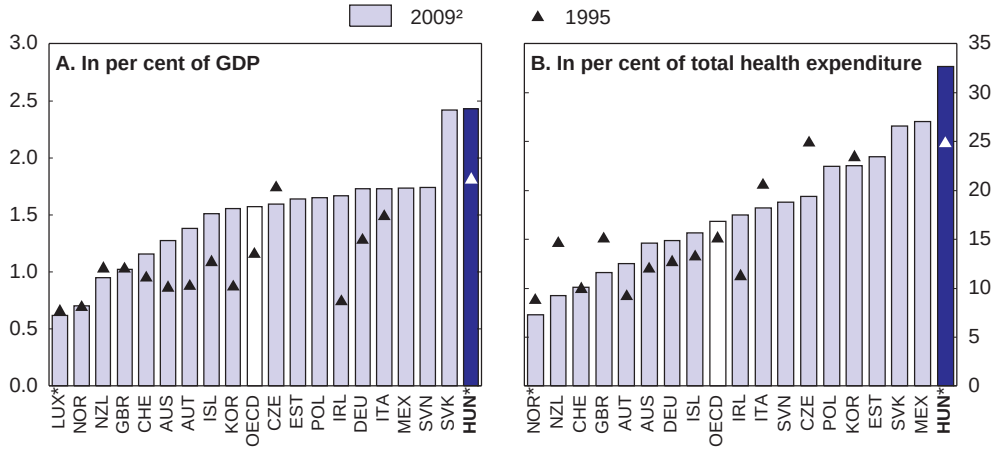
The delivery of health care services faces funding and staffing constraints

Funding has not been adequate or stable

A salient feature of the total health spending data in Hungary is its instability. Short episodes of spending increases were generally followed by longer periods of cost containment and budget cuts. Between 1995 and 2009, public expenditure on health decreased by one percentage point to nearly 5% of GDP. Expenditure cuts over the periods 1994-98 and 2005-08 were particularly deep. The share of public health spending in total health spending decreased from close to 85% in 1995 to almost 70% in 2009 (Gaál *et al.*, 2011). Modifications in the financing of health care providers and the introduction of strict output limits resulted in an accumulation of high levels of debt, of around HUF 100 billion in early 2010 (0.3% of GDP), by some inpatient providers, the majority of which are owned by local governments with limited financial resources to bail them out. Due to the financial predicaments of health care institutions, an

Figure 6. **Pharmaceutical expenditure**

Total expenditure on pharmaceuticals and other medical non–durables[1]



1. The OECD aggregate is an unweighted average of data available. An asterisk indicates the lowest or highest value amongst OECD countries.
2. Or latest year of data available (2007-09); see source database for detail of country coverage.

Source: OECD (2011), "OECD Health Data: Health Expenditure and Financing", *OECD Health Statistics* (database), December.

increasing number of companies have started supplying drugs, medical equipment and appliances, as well as food only against cash or under the condition that they pay back part of their outstanding debt. Further exacerbating the situation, health care institutions have recently faced greater difficulties in borrowing from banks. In order to keep inpatient providers from going bankrupt and the system running, the central government stepped in with extra funding in 2009 and 2010, under the condition that participating institutions agreed to make a consolidation plan, participate in a regular debt–monitoring system and cooperate in territorial capacity restructuring. The government also provided some extra funding (HUF 58 billion, around 0.2% of GDP) at the end of 2011 to help heavily indebted health care institutions.

The inadequacy of public funding in health care partly reflects problems in revenue collection commensurate with the scope and breadth of the health basket. The social health insurance scheme provides almost universal coverage and a rather comprehensive health basket with little or no co-payments, excluding some medical services, pharmaceuticals, medical aids and prostheses. A systematic approach to review the benefit package and exclude services and goods that are not cost effective or their clinical effectiveness is still missing. The funding of the health system has been strongly influenced by policy goals not directly related to health, such as the determination of social security contributions based on labour market and broader economic policy objectives (Gaál *et al.*, 2011).

A looming crisis in the health care workforce is a pressing issue

Hungary faces a serious challenge to retain its medical doctors and this problem has come to the fore lately, becoming ostensibly the most pressing issue affecting the health care system. In May 2011, the Hungarian Hospital Residents' Association (HHRA) gave the government until the end of 2011 to take steps towards improving their wages and threatened to resign in mass in January 2012 unless their wages were increased to three, from the current levels of around 1.5, times the average wage. As a result of the negotiations between the authorities and the HHRA, the deadline was moved to the end of March 2012, until when further discussions are planned to take place. A survey conducted by the Hungarian Doctors Association (MOSZ) concluded that more than 6 000, mostly young, physicians may leave the country next year if a career model is not established by the end of 2011. According to the Hungarian Chamber of

Health Professionals, there is currently a shortage of 4 000 health care professionals and about 1 500 professionals are leaving every year, which could undermine the continuous delivery of health care services within five years.

Since there has not been an official registry of health care professionals leaving the country to practice elsewhere and registering with relevant chambers was not compulsory for health workers until April 2011, the number of health care workers applying to have their diploma certified is commonly used to estimate their outflow. Health professionals need to go through a lengthy process and pay substantial fees to have their diploma certified by the Office of Health Administration and Administrative Procedures (OHAAP). Between May 2004, the date of the entry into the EU, and the end of December 2009, 4 901 physicians (their numbers stood around 30 000 in 2009), 1 306 nurses (there were around 62 000 in 2009), 749 dentists and 226 pharmacists applied for certification. Although some of these health professionals were already working in another country, hence overestimating the extent of outflows over the period in question, these figures are indicative of a significant pressure. On the other hand, the inflow of health professionals has been weak, with the exception of nurses; 639 foreign physicians, 1 585 nurses and 82 dentists were registered with the OHAAP between 2004 and 2008. Due in large part to linguistic barriers, these health professionals tend to be from Hungarian minorities in neighbouring countries. It appears to be the case that there was a net positive inflow of nurses, and the number of foreign nurses applying to practice in Hungary has dropped sharply by around 45% since the mid-2000s (Eke *et al.*, 2011).

Reforms of the health care system

While the outputs of the health care system are significant, they have not been translated into health outcomes to the extent consistent with the level of health care services delivered. This apparent disconnect between health outputs and outcomes is likely to indicate problems in various areas. The authorities need to address related weaknesses to improve the quality of health care services without putting excess strain on public resources.

Enhancing spending efficiency, keeping output inflation and costs under control

Containing spending on pharmaceuticals

The Hungarian authorities have by and large relied on blunt policy instruments, such as introducing caps to relevant budgets, to contain spending on pharmaceuticals. However, greater efforts should be placed on channelling public resources into subsidising only pharmaceuticals which are necessary, effective, and obtained at the best possible price, and on ensuring pharmaceuticals are used appropriately. In 2006, generics captured around 30% of the market in value terms and 40% in volume terms, down from 55% in volume and 35% in value terms in 2004 (EGMA, 2007). In several OECD countries, the value of the generics market is small relative to the share of the total pharmaceuticals market in volume terms, reflecting the extent of price differences between original products and generics, and in turn the degree of price competition for products off patent protection. In Hungary, the gap is much smaller, indicating a lack of price competition in the generics market (OECD, 2008b). There have been a number of important measures announced in the Széll Kálmán plan to contain pharmaceutical spending, most notably through measures aiming at stimulating price competition, favouring generics, improving patient compliance and reviewing drug subsidies. In particular, the authorities adopted measures in July 2011 to foster the extent of competition in the pharmaceutical market. The move towards international reference pricing and the generic program are rather positive steps. The halving of the time period required for a generic product to become a reference product to three months after the expiration of the patent is also likely to boost competition.

Incentives faced by physicians, patients and pharmacies should be aligned to favour lower-cost generic alternatives. Mandating the substitution of prescribed drugs by the lowest–priced bioequivalent and substitutable products and allowing monthly price changes has been largely successful in Sweden (Moïse and Docteur, 2007). Another policy to encourage the use of generics is to require physicians to prescribe the international non-proprietary name for an active substance, rather than the brand name. In the United Kingdom, almost 80% of all prescribed medicines in 2004 were prescribed in this manner. Successfully influencing prescription behaviour in this direction, however, entails changes in medical school teaching practices and providing further support to physicians to inform them about generic alternative products, for instance, through the use of computer software (Simoens and de Coster, 2006). A pilot active-substance-based prescription scheme for cholesterol reducing medications (statins) has been decided on and will be launched in April 2012 in Hungary. Clinical guidelines, developed to guide physician decision making, could also be used to promote best practices in drug prescription and use. In order to scrutinise and monitor drug prescribing and dispensing, centralised electronic records should be maintained. This would also help implement practice profiling and benchmarking to assess the performance of providers in terms of guidelines and prescription behaviour. Furthermore, when using health technology assessments, it should be established that these guidelines are evidence based.

As part of the fiscal consolidation package, the government increased the licence fees of pharmaceutical industry sales representatives. While this could reduce the number of sale representatives (although pharmaceutical firms can pass some of this additional cost on to consumers), it is not likely to address the perceived problem of undue influence of pharmaceutical companies on physicians. In Sweden and Switzerland, pharmaceutical companies and health professionals adopted a code of good conduct, imposing guidelines and restrictions on education and promotional activities of pharmaceutical industry sale representatives. In Sweden, some county councils placed restrictions preventing any kind of direct contact between physicians and the pharmaceutical industry (Moïse and Docteur, 2007). Rather than taking such an extreme measure, restrictions such as allowing only group visits would preserve the educational value of the visits of sales representatives and could reduce the likelihood of undue influence of the pharmaceutical industry through this channel.

Addressing deficiencies in organisation and prioritisation process

The objective of health policy and the prioritisation process should be dictated by allocating greater resources to where the maximum benefits could be obtained, rather than health care outputs. This approach could also underpin the prioritisation process.

Better alignment of the capacity of providers to the needs of patients has been a stated goal of successive governments since 2002. It was seen as an important step to make health care provision more equitable, increase the quality of care and improve the efficiency of health care delivery. In 2006, the government explicitly recognised that the structure of the health care delivery system (the ratio of acute, chronic, and nursing care capacities) in relation to morbidity and mortality patterns was distorted. Furthermore, it was argued that the geographical distribution of the capacities was unequal, resulting in unfair disparities in access to care (Gaál *et al.*, 2011). The Hungarian health care system was transformed into the current purchaser–provider model from an integrated state health services provider, with a view to splitting the purchasing and service delivery functions and leaving the government only with regulatory responsibilities. It was envisaged that the local governments would plan for health care services needs, helping to get rid of legacy of excess capacity. This strategy failed, as local governments were not willing to close down hospitals because of associated political costs and the lack of administrative capacity. The government took over the assets and debts of 13 hospitals and health care providers in the municipality of Budapest and an additional 32 hospitals and health care providers across the country as of 1 January 2012.

While there is no concrete plan on how these new institutions will be managed, some changes are likely to take place, starting in May 2012, to facilitate the reallocation of resources, notably between inpatient and outpatient care, as well as between curative and preventive and long–term care.

Health needs assessments are not systematically conducted to guide the contracting process in Hungary. Instead, the government and Parliament have the most decisive role in regulating provider contracts, including capacities, reimbursement prices, volume of outputs, provider payment schemes, and the financing of capital costs. Systematic health planning and needs assessments do not figure in the purchasing decision of the National Health Insurance Fund Administration (NHIFA). In addition, systematic performance measurements are also lacking, with accountability measures being restricted to audits that chiefly focus on legal and financial aspects of the operations of providers (Gaál *et al.*, 2011). The authorities should allow the NHIFA to engage in selective contracting to avoid oversupply while building commensurate capacities in the NHIFA to enable it to perform the new tasks.

Improving the coordination of care across providers

As a result of a sharp rise in the prevalence of chronic diseases and degenerative conditions, particularly in ageing populations, care coordination has become increasingly important and relevant in OECD countries, reflecting the need to shift the focus of health care services from acute interventions to monitoring and managing chronic conditions (OECD, 2010). Optimal management of such conditions requires the involvement of multiple care providers and specialties at different levels of care. Care coordination can also cover acute care episodes. In a fragmented system of health care providers, which are institutionally independent and operate under different budgetary regimes, it is a challenge to coordinate care across different providers and modes of care in ways that can improve quality of services and reduce costs. This, in return, entails changes in the payment systems and the organisation of providers to encourage them to work in teams, share information and assume collective responsibility in a patient's health. Hofmarcher *et al.* (2007) suggest that there is scope for improving performance in coordination by changing existing health–care systems through a policy mix ranging from better organised ambulatory care to patient–centred integration of health and long–term care. Hungary has some experience with care coordination. The care coordination pilot project covered around 20% of the population and was in place between 1999 and 2008. Although it was not maintained long enough to fully assess its performance, it was considered to be successful (Gaál *et al.*, 2011). The care coordination experience also revealed that it can have a cost-increasing effect if previously unmet needs are uncovered, as in the absence of proper care some patients prematurely die or the critical window of opportunity to treat passes. This could in fact be desirable, particularly if addressing unmet needs led to dramatic improvements in health outcomes. Although implementing care coordination within the current system is likely to require sustained efforts to embed the right incentives and develop an appropriate organisational and operational structure, the authorities should move in this direction.

Improving provider payment schemes

While Hungary has made strides in overhauling provider payment systems to improve the performance of the health care system, further reforms could help the health system addressing the challenge of substantially improving the health status of the population without putting undue strain on resources. The challenge for the reform of the health care payment systems is to give health care providers an incentive to offer the right care for each patient at the right level and in the right institutional setting. This also entails giving difficult cases sufficient resources and conserving resources in cases where their use would be sub–optimal. Furthermore, changes in payment systems could have long–term consequences for technology use, medical practices and costs over time (McClellan, 2011).

Family doctors (GPs) and paediatricians in Hungary are intended to act as gate–keepers, as patients need referrals to have access to higher levels of care, with the exception of some specialties. They have, however, not been effective in avoiding unnecessary referrals and offering definitive care. Between 1990 and 2008, the number of non–diagnostic referrals to outpatient specialist care increased by more than four times, while the number of patients referred to inpatient care per physician increased by almost 80% (Gaál *et al.*, 2011). This in part reflects the lack of incentives embedded in the capitation payment system, which currently prevails in the Hungarian primary care system.

Capitation–based systems stipulate fixed payments per patient regardless of the cost, intensity and quality of services provided in primary care. In Hungary, capitation payments take also into account the age structure of individuals on the list of the family doctor or paediatrician to control for the needs of patients. In a competitive environment, which is largely in place in Hungary with few restrictions on patient choice, GPs who are paid fixed capitation payments would compete on the quality and conformity of services with patient demands. At the other end of the spectrum, fee–for–service payment systems, which relate the volume and intensity of care to remuneration of providers, do not penalise the use of higher quality and intensity services. There is a trend towards introducing greater accountability for quality and efficiency in provider payment systems, which generally requires a combination of fee–for–service, pay–for–performance and capitated payments. The optimal combination of these systems, however, needs be decided by the authorities on practical grounds.

The fragmented nature of the provider payment system in Hungary does not provide health care providers with incentives to deliver equivalent treatments in a less costly setting and the mode of care. There are welcome steps taken to align outpatient and homogenous disease group (HDG) points so that therapeutically equivalent treatments are rewarded equally regardless of the setting in which health services are offered. For instance, aiming at increasing the proportion of one-day surgeries, 126 new surgical procedures have been added to those that may be performed as day surgeries in 2011.

Reducing personnel costs by reallocating duties

The skill mix of Hungarian health workers appears to be different from that in other OECD countries. The ratio of practicing nurses and midwives to physicians was low at around two in 2009, relative to the OECD average of three and well below some OECD countries, most notably Ireland (close to 6.5) and Finland (above 5.5) (OECD, 2011). The high share of highly paid specialists and low nurse-to-physician ratios create cost pressures, which could be aggravated if substantial increases in the wages of health care workers take place to retain them in the system. Although skill–mix arrangements likely depend on productivity considerations, health worker and patient preferences, and other economic and social factors, there is some evidence suggesting that certain tasks traditionally performed by physicians could be transferred to highly qualified nurses, without undermining the quality of care. Indeed, Hungarian physicians tend to perform medical and administrative tasks that could be carried out by nurses and other support personnel (Gál *et al.*, 2003; Orosz and Holló, 2001). Increasing the share and training of lower-skilled health care workers to take over mundane tasks performed by doctors would have the potential to reduce personnel costs, improve labour productivity and relieve shortages in some specialties (OECD, 2004).

Improving health outcomes and macroeconomic performance

Enhancing the quality of health care services

The extent of available health care quality indicators for Hungary is limited. Making provider payment reforms operational entailed building information technology capacities, which in turn has improved the transparency and accountability of the health care system. In theory, quality indicators could

be constructed from performance data reported to the NHIFA and used to evaluate the performance of the system and providers. The authorities should act swiftly to construct quality indicators at the provider level, which would require little additional investment. Provider–level quality indicators could also be used in the purchasing decisions of the NHIFA, which is the sole payer with a monopsonistic market power but has only very limited power in exercising discretion over purchasing decisions, notably setting contract conditions and engaging in selective contracting with providers.[6] For instance, stipulating minimum quality requirements in the contracts of the NHIFA with providers would be rather supportive of improving the quality dimension of the health care services.

There is some evidence indicating that the quality, timeliness and appropriateness of health care services is lacking. Cancer survival, which is not heavily influenced by factors outside of the health system, is an area where cross–country comparisons can be conducted to gauge the ability of health systems to offer accessible, quality care. While socio–economic and other factors can affect how early a cancer is identified for treatment, and hence influence survival, the ability of health systems to provide access to quality care is a crucial determinant of performance. Hungary performs very poorly in terms of survival rates, with the exception of lung cancer (Figure 7). In addition, the gaps in survival rates are rather large relative to better performing countries, such as the United States, Japan and Western European countries, despite the fact that Hungary devotes a relatively high share of resources to cancer care. Spending on cancer care amounted to 7% of total health expenditure in 2006,[7] among the highest in the OECD, and the number of oncologists per thousand population was around 55 in 2009, lower only than in Sweden and substantially higher than the OECD average (OECD, 2011).

There are several avenues that the authorities could explore to improve the quality of health care services. More specifically, strengthening primary care, reforms of the provider payment systems and greater care coordination are promising areas to substantially enhance the efficiency of the Hungarian health care system in terms of health outcomes, and even cost effectiveness.

Strengthen primary care

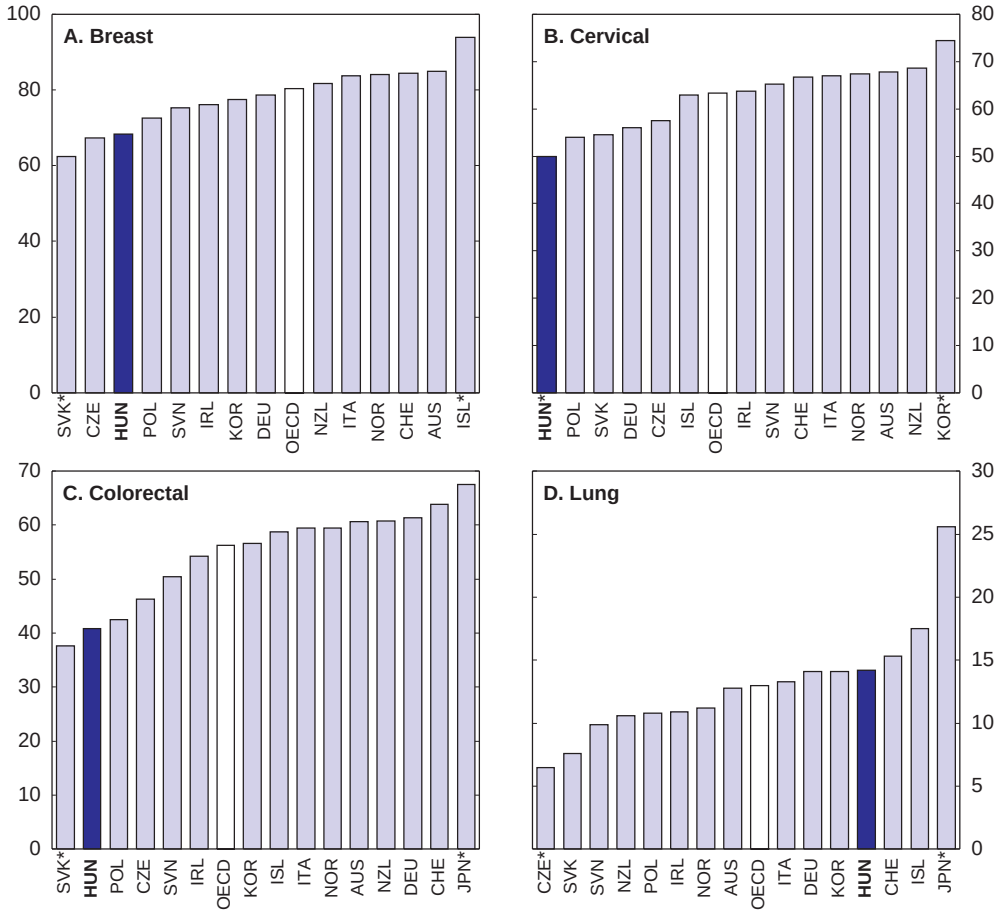
Primary care has an important role in the delivery of health services in the majority of health systems. Primary care represents the first and most typical point of contact for basic health and other care needs. It often serves as the coordinating hub for prevention, specialised care and the management of long-term chronic conditions. In turn, greater reliance on primary care has the potential to reduce the need for costly and unnecessary hospital care, while significantly reducing the number of premature deaths, especially those arising from chronic conditions (OECD, 2011b). Despite the potential for large improvements in population health and health system efficiency through better primary care provision, Hungary, as most other OECD countries, spends little on primary care. The number of GPs relative to specialists is also among the lowest in the OECD (OECD, 2011).

6. The NHIFA is obliged to contract with providers that are approved through the capacity regulation process of the government. Family doctors are mostly private entrepreneurs and contract with local governments to serve the local population. The NHIFA in turn has an obligation to contract with family doctors who are affiliated with local governments. Institutional providers also need to contract with the NHIFA, with the contracts specifying outpatient consultation hours and the number of acute and chronic care beds.

7. This figure may be biased upwards because the overall level of total health spending is low and the amount of expenditure maybe also driven by high international prices of some cancer drugs.

Figure 7. **Relative survival rates for cancer**

2007-09 or nearest available year, per cent[1]



1. The OECD aggregate is an unweighted average based on available data for 28 countries. An asterisk indicates the lowest or highest value amongst OECD countries.

Source: *Eurocare 4 Database*, Instituto Superiore di Sanità, *www.eurocare.it*.

The quality of primary care services in Hungary appears to be relatively low. Potentially preventable admissions are often used as a measure of the quality of primary care services, as these conditions can be easily identified, treated or managed in a primary care setting. In the absence of such indicators, potential years of life lost for medical conditions amenable to prevention and management in a primary care setting are used as an alternative indirect measure for the performance of primary care. Similarly, the same type of analysis is carried out for cancers that are considered to be amenable to early detection in a primary care setting. On these measures, Hungary is one of the countries in which significant gains could be achieved in avoiding mortality from chronic conditions and reducing the number of years of life lost for cancers that can be detected early (Abi-Aad, 2012).

Increasing the amount of resources dedicated to primary care provision should be accompanied by improvements in the volume, quality and range of services offered by GPs and could be financed by savings realised in other levels of care through greater reliance on primary care. An important step in strengthening primary care is attracting a greater number of physicians. A quota system was introduced in 2000, giving "practice rights" (*praxisjog*) to each family doctor with a territorial supply obligation in that year. While this was originally intended to provide adequate pension income to family doctors, it has become a major obstacle to the entry of young family doctors into the system. The recent establishment of

a practice fund and announcement of the grant programme for career-starting GPs by the authorities to facilitate the purchase of practice rights are welcome steps in the short term. The authorities, however, need to abolish practice rights in the long run to ensure that sufficient numbers of family doctors enter into the system without sustained financial support and incentives.

One possible way of improving quality and efficiency at the primary care level is to raise the share of group practices, in which self–employed medical and paramedical health professionals are united in a single practice, rather than the solo practices which currently dominate in the provision of primary health care services in Hungary (PHAMEU, 2010). Compared with traditional solo practices, group practices present several advantages: greater accessibility due to longer opening hours; efficient cooperation between medical professionals; more extensive care supply; reduced overhead costs; more scope for delegating tasks traditionally carried out by physicians to nurses and other professionals; and a better work–life balance between private and professional life, perhaps helping to attract younger general practitioners (WHO, 2008). While the current capitation–based payment system is not perceived as a barrier for developing coordination and cooperation in group practices, as opposed to pure fee–for–service systems, extra payments for professional cooperation could be introduced to encourage group practices. If group practices offer new services, such as counselling chronic patients, special payments for these new services should be considered.

In an attempt to improve its control over the quality of primary care, the government introduced in 2009 a performance bonus system for family doctors within GP contracts, based on a number of quality indicators. The set of indicators was expanded in 2011. It is similar to the Quality and Outcome Framework (QoF) adopted in the United Kingdom in 2004. Although the scale and scope of the programme was modest, as measured by the range of indicators considered and the total amount spent (HUF 300 million in 2010), there are plans to scale up the programme and improve the eligibility criteria (Gaál *et al.*, 2011).

The use of information technologies in primary care needs to be improved in Hungary. The communication of electronic patient records across all levels of care is currently limited. Family doctors manually transmit care documents *via* the patient to secondary care specialists (Gaál *et al.*, 2011). Extending the information technology capacities to introduce electronic patient records that are readily available across different care settings would allow providers to access patient information readily, which in turn would streamline treatment decisions, reduce duplication, and improve accountability of providers. They would also make billing more transparent and allow patients to access and monitor their care. For a widespread adoption of electronic patient records, the authorities need to establish clear incentives and benefits to GPs and their patients to successfully gather data at the practice level (OECD, 2009).

Replace budget caps

Another element of the compensation of providers that could have undesirable effects is spending constraints in the form of budget caps, notably in outpatient and inpatient care in Hungary. In 2004, the government started setting output limits in inpatient and outpatient care in terms of the maximum number of diagnosis related groups (DRG) and outpatient fee–for–service points for each provider. Since 2007, providers have not been compensated for points generated above these caps, leading some small hospitals to refer their over-the-limit patients to larger hospitals. Such caps encourage providers to spend up to the ceiling and provide little incentive for them to make efficiency gains or increase productivity. In addition, if cost–containment initiatives are maintained for a long period, they can have undesirable effects. For instance, capped budgets create incentives to adopt cost–saving technologies, but also create disincentives to take up technologies that may reduce costs on a per–unit base but drive up overall costs because of resulting growth in volume. Therefore, budget caps in various health sub–budgets are blunt instruments and should be replaced with instruments that promote quality and activity (OECD, 2004).

Unify the funding of capital and recurrent costs

Health care providers in Hungary are funded by social health insurance for recurrent costs, out of general revenues for capital costs. NHIFA contracts do not cover capital costs. Investment decisions are effectively separated from the utilisation of health care services, with repercussions for service delivery and quality. For instance, there is evidence of the use of ineffective or dominated technologies, inappropriate care, and provision of unnecessary services (Gaál *et al.*, 2011). Health care services are to a great extent provided by institutions owned by local governments. In the absence of adequate returns on private capital, including depreciation costs, private sector involvement in the health care sector has remained limited. This has placed a substantial burden on local governments with maintenance obligation as the owners of providers and limited resources. One potential way to rectify this problem is to incorporate the price of capital into health care provider payment systems. Sussex (2004) argues that compensating providers for both recurrent and capital costs jointly has a number of potential benefits, particularly for publicly owned health care providers, such as: *i*) making providers realise that capital is a costly input; *ii*) inducing providers to ensure an appropriate mix of capital and labour; *iii*) improving the comparability of costs across different health care providers and consequently enhancing benchmarking and performance management, which could be used to set a reliable basis for fair competition between public and private sector providers (Kutzin *et al.*, 2010).

Improving the management of the health workforce

In a sector, which by and large remains labour–intensive, developing strategies to address current and future challenges of training and maintaining an appropriate distribution of staff across specialties and geographic areas is a perennial challenge. In addition, devising appropriate compensation and performance assessment schemes to improve the quality of health care services is of great importance.

Devise appropriate compensation schemes and other incentives

As noted above, the emigration of health workers poses an immediate challenge. Salary levels have been the main push factor for the emigration of health care professionals (Eke *et al.*, 2011). Health care workers have predominantly been salaried public employees in Hungary, with the most notable exception of entrepreneur family doctors who contract with the NHIFA and local governments. Most specialists are salaried public employees, who are guaranteed a minimum level of salary according to a pay scale that takes into account qualifications and years of experience, but increasingly high numbers of them contract with providers and work as private entrepreneurs. The salaries of health care workers on average have stood at a relatively low level, significantly below the economy–wide average (close to 90% in 2010) (HCSO, 2011). The substantial increase in autumn 2002, before local elections, boosted the average wages in the health sector closer to the industry average, but the following waves of strict cost–containment policies have led to health sector wages losing ground to the rest of the economy. Although there have been some targeted measures (most notably, the recent resident grant programmes and income supplements to health care workers in high-risk positions), the pattern of relatively low wages continues to hold for health care workers with different skill levels and their counterparts in the rest of the economy (Table 3). Similarly, the gap between the wages of nurses and economy–wide average earning was around 20%, even after taking into account overtime payments (Gaál *et al.*, 2011). The wages of health care professionals are low by international comparison. In 2009, as multiples of the average wage, the wages of GPs (1.4), specialists (1.6) and hospital nurses (0.8) were among the lowest in the OECD.

Table 3. **Average monthly earnings of employees by sector of activity**

Per cent of national economy total

	2000	2005	2010
Health activities	81.9	96.5	85.2
Industry	103.5	95.4	103.2
Financial and insurance activities	216.4	221.3	213.4
Public administration and defence[1]	120.3	134.1	125.0
National economy, total (thousand HUF)	91.8	166.7	216.0

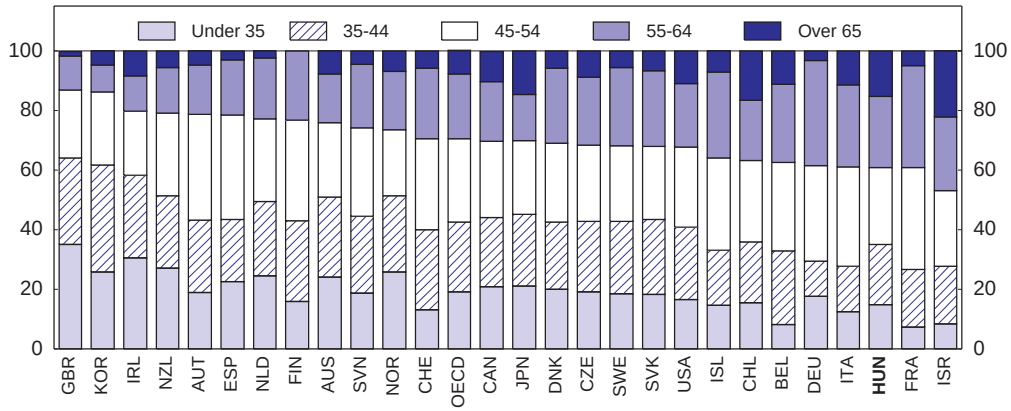
1. Including compulsory social security.

Source: HCSO (2011), "Employment, Unemployment and Earnings", *Stadat Tables*, Hungarian Central Statistical Office, December.

Compounded by the emigration of health professionals, the relatively unfavourable age structure of practicing physicians exerts an additional pressure on the Hungarian health system. The share of physicians aged over 55 was around 40% in 2009, well above the OECD average of around 30% (Figure 8). The high share of older physicians reflects many physicians who supplement their pension incomes by continuing to draw salary, as indicated by the high share of physicians aged over 65 at around 15%, compared with the OECD average of nearly 10%. The demographic problem is more pronounced among family doctors and paediatricians, around 27% of whom were over the age of 60 in 2007, up from 10% in 1990 (Ádány, 2008). In order to better understand whether there is a sufficiently large pool of licensed physicians to draw from in the face of a high pace of retirements and immigration, the difference between licensed and practising physicians could be used (European Commission, 2010). The difference was close to 30 per 100 000 population, one of the lowest in the OECD, indicating that while Hungary currently does not appear to have a problem in terms of the overall number of practicing physicians, with a significant share of physicians approaching retirement fast, corrective measures are needed to maintain sufficient numbers of medical staff. One way to replace retiring and emigrating health care staff is to increase the training of new physicians. The number of medical graduates per thousand practicing physicians stood at 30.9 (9.6 per 10 000 population) in 2008, down from 41 in 2005 and around the OECD average of 31.3. Nursing graduates per 10 000 population were 39.1 in 2008, versus the OECD average of 38.9 (OECD, 2011).

Figure 8. **Age distribution of physicians**

2009, per cent[1]



1. 2008 for Australia, Denmark, Ireland, Japan, Netherlands and Sweden. The OECD aggregate is an unweighted average of data for 27 OECD countries.

Source: OECD (2011), "OECD Health Data: Health Care Resources", *OECD Health Statistics* (database), December.

The management and strategic planning of the health workforce is crucial, considering the length of medical education and difficulties to adjust the supply of skilled health workers rapidly. An important consideration in the planning and management of the health workforce is that coordination across different areas must be ensured. For instance, as illustrated in the case of Hungary and some other OECD countries, not being able to set correct remuneration levels and keeping remuneration from rising in order to contain overall health costs have led to difficulties in maintaining an adequate level of services (Docteur and Oxley, 2003). Increasing international mobility of health workers has made the task even more challenging, compared to the case where the government was able to determine both the supply of and demand for health workers. There are additional challenges, such as addressing disparities in physician densities across regions and specialties. Financial incentives alone are not likely to improve concerns in these areas. Policies focusing on a mix of both financial and other incentives, such as improving working-time flexibility, creating more flexible career development opportunities and offering a wider range of options for continued education and training should be considered (OECD, 2008c). Early career advice and support during medical school and after graduation was found to encourage young doctors to take up shortage specialties in the United Kingdom (Mahoney *et al.*, 2004). According to a review of practices in OECD countries, giving students experience of primary care practice and appointing primary-care role models to academic positions influence students' choices towards a career in primary care (Simoens and Hurst, 2006).

Addressing inequalities in health status and access to health care

There are wide disparities in access to health care across different regions in Hungary, driven not only by differences in the level of socio–economic development, but also the availability of health care capacities. In 2007, there was a twelve-fold difference in the per–capita utilisation of day care, and three-fold difference in acute inpatient care across micro–regions. Sizable gaps remain even after controlling for differences in health care needs (HealthMonitor, 2010).

Strongly discourage the use of informal payments

Informal payments are a legacy issue that is deeply rooted in the Hungarian health care system. Relatively low salaries of medical doctors are considered to be the main contributing factor to the prevalence of informal payments, as informal payments are considered an important source of out-of-pocket expenditure. Informal payments do not only influence the efficiency of the health care system, raising the possibility to undermine policy objectives, but also are a highly regressive way of funding health care. Szende and Culyer (2006) find that people with lower income pay proportionally more for public health care through informal payments in Hungary. Gaál (2004) also reports that refusal to pay informal payments results in denial of home visits by GPs and elective surgeries.

There is no simple solution for the elimination of informal payments and it is likely to take a concerted effort to change the behaviour of both physicians and patients. A limited number of countries have been able to successfully reduce informal payments and some common elements from their experience could guide Hungary. For instance, taking a comprehensive approach to address the deficiencies of the health care system as a whole and reinvesting ensuing efficiency dividends back into the system by most notably improving the remuneration of health care workers would be a key enabling factor to combat informal payments. Another important aspect is the acceptance of patients to pay for services that are freely available, reflecting the importance of the cultural context. For this reason, defining a clear and transparent basket of health care services and educating patients is crucial. Nevertheless, Gaál and McKee (2005) argue that distrust in the system could motivate health care professionals to ask for a "fair" remuneration and patients in return could accept it. The short–lived experience of introducing user fees in Hungary was partially an attempt to formalise informal payments. There is no firm evidence that user fees had an appreciable impact on reducing informal payments (Kutzin *et al.*, 2010). While it is less likely to

produce results when introduced alone, condemning informal payments as a corrupt practice publicly and seeking sanctions through the legal system or professional organisations could become a supporting pillar.

Ensure access to health care services, in particular for the Roma minority

The Roma are significantly more likely to report worse health in any indicator than the non-Roma in Hungary. Part of the discrepancies in outcomes may be traced back to the relatively poor access of the Roma to health care services. Based on a survey on the health status of people in Roma settlements, Kósa *et al.* (2007) find that the Roma are less likely to utilise health care services, particularly specialist and dental services. There was a big gap between the share of Roma women and women in the rest of the population aged 45 to 64 who underwent a mammography: only 25% of Roma women versus 70% of other women indicated that they had participated in the universal breast screening programme. They also find that the use of health services by the Roma is similar to that of the lowest income quartile in the general population. The Roma, however, are more likely to experience some discrimination. Of those who used any health services, 35% of the Roma and 4.4% of the general population encountered some discrimination, possibly discouraging the Roma to seek medical attention (Kósa *et al.*, 2007). The access to care is further exacerbated by the fact that, excluding Budapest, approximately 18.5% of the Roma live in villages without a resident family doctor.

Sufficient numbers of health care workers, particularly GPs, serving in the Roma communities in rural areas, should be ensured to improve access to health care services and to relieve the workload on currently practicing health professionals in these areas. As discussed above, in order to encourage health care professionals, policies should focus on a mix of incentives, and should not be restricted to financial incentives. Another useful practice in OECD member countries is to admit more medical students from rural areas and the Roma minority to medical schools. It is likely to have a positive medium and long–term impact on the geographical distribution of doctors as those students are more likely to practice in rural areas and Roma communities (OECD, 2008c). This could have the additional benefit of tackling discrimination and communication problems the Roma face in utilising health care services. Indeed, in 2008-09, the government implemented a programme to increase the proportion of the Roma working in the medical field to between 3 and 5% (Council of Europe, 2009). Efforts in this direction should be continued.

Although not directly related to access to health care, specific public health interventions, including health education and health promotion programmes, are needed for the Roma. Socioeconomic status explains the worse health status of people in Roma settlements, but not their less healthy behaviour. Therefore, it is important to take into account cultural differences in developing public health interventions for the Roma, rather than focusing exclusively on the socioeconomic status (Vokó *et al.*, 2009).

Box 1. **Policy recommendations to improve health outcomes and system in Hungary**

Improving the quality of health care services

- Strengthen primary care through:
  - Attracting greater number of general practitioners by facilitating the purchase of practice rights in the short run and abolishing practice rights to ease the entry of young GPs into the system.
  - Encouraging group practices in which self–employed medical and paramedical health professionals are united in a single, dedicated practice, rather than solo practices.
- Improve provider payment systems through:
  - Replacing budget caps in various health sub–budgets with instruments that promote quality and activity.

- Abolishing the separate financing of providers for recurrent and capital costs, which effectively separate investment decisions from the utilisation of health care services.

- Take steps towards greater care coordination, which would encourage providers to work in teams, share information and assume collective responsibility in a patient's health.

Keeping output inflation and costs under control and ensuring the delivery of health services

- Contain spending on pharmaceuticals through:
  - Scrutinising and monitoring the prescribing and dispensing of drugs through centralised electronic records.
  - Allowing only group visits for pharmaceutical industry representatives, which would reduce the likelihood of other arrangements between physicians and the pharmaceutical industry.

- Perform systematic health planning, needs assessments and performance measurements and utilise them in the purchasing decision of the National Health Insurance Fund Administration.

- Enhance the management of the health workforce through:
  - Setting adequate remuneration levels to retain health care professionals in the health care system.
  - Increasing the share and training of lower–skilled health care workers to take over mundane tasks performed by doctors to reduce personnel costs, improve labour productivity and relieve shortages in some specialties.

Addressing inequalities in health status and access to health care

- Strongly discourage informal payments by seeking legal sanctions.

- Improve access to care of disadvantaged groups, particularly the Roma, through:
  - Ensuring that sufficient numbers of health care workers, particularly general practitioners, serve in Roma communities in rural areas.
  - Proceeding with programmes to increase the share of the Roma in the medical field, and tackle discrimination and communication problems the Roma face in utilising health care services.

BIBLIOGRAPHY

Abi-Aad, G. (2012), "Measuring Quality in Primary Care: Health System Characteristics, Quality Indicators and Measurement Challenges", *OECD Health Working Papers*, OECD Publishing, forthcoming.

Ádány, R. (2008), "A magyar lakosság egészségi állapota, különös tekintettel az ezredforduló utáni időszakra" (The Health Status of the Hungarian Population, with Special Reference to Period after the Turn of the Millennium), *Népegészségügy* (Public Health), Vol. 86, No. 2.

Council of Europe (2009), "ECRI Report on Hungary (Fourth Monitoring Cycle)", European Commission Against Racism and Intolerance (ECRI), *www.coe.int/t/dghl/monitoring/ecri/Country–by–country/Hungary/HUN–CbC–IV–2009–003–ENG.pdf*, accessed 16 August 2009.

Docteur, E. and H. Oxley (2003), "Health–Care Systems: Lessons from the Reform Experience", *OECD Health Working Papers*, No. 9, OECD Publishing.

EGMA (European Generics Medicines Association) (2007), "Generic Market Shares in Europe 2006", *www.egagenerics.com/doc/fac–GxMktEur_2006.pdf*, accessed 5 September 2011.

Eke, E., E. Girasek and M. Szócska (2011), "From Melting Pot to Laboratory of Change in Central Europe: Hungary and Health Workforce Migration", in M. Wismar *et al.*, *Health Professional Mobility and Health Systems: Evidence from 17 European Countries*, Observatory Studies Series, No. 23, European Observatory on Health Systems and Policies.

European Commission (2010), "Joint Report on Health Systems", *European Economy: Occasional Papers*, No. 74, European Commission and the Economic Policy Committee.

Gaál, P. (2004), *Health Care Systems in Transition: Hungary*, Copenhagen, WHO Regional Office for Europe on behalf of the European Observatory on Health Systems and Policies, WHO Regional Office for Europe.

Gaál, P. *et al.* (2011), "Hungary: Health System Review", *Health Systems in Transition*, Vol. 13, No. 5, LSE Health and Social Care.

Gaál, P. and M. McKee (2005), "Fee–for–Service or Donation? Hungarian Perspectives on Informal Payment for Health Care", *Social Science and Medicine*, Vol. 60, No. 7.

Gál, R., Z. Mogyorósy, A. Szende and P. Szivós (2003), "Hungary Country Study", Study on the Social Protection Systems in the 13 Applicant Countries, Employment and Social Affairs DG, European Commission.

Gay, J.G. *et al.* (2011), "Mortality Amenable to Health Care in 31 OECD Countries: Estimates and Methodological Issues", *OECD Health Working Papers*, No. 55, OECD Publishing.

HCSO (Hungarian Central Statistical Office) (2009), *Statistical Yearbook of Hungary, 2008*, HCSO.

HCSO (2011), *Statistical Yearbook of Hungary, 2010,* Hungarian Central Statistical Office.

HealthMonitor (EgészségMonitor) (2010), "A szükségletre korrigált egészségügyi ellátás igénybevételének területi egyenlőtlenségei Magyarországon" (Geographical Disparities in Health Care Utilisation Controlled for Health Care Needs in Hungary), *Research Report*, HealthMonitor Research and Consulting.

Hofmarcher, M.M., H. Oxley and E. Rusticelli (2007), "Improved Health System Performance through Better Care Coordination", *OECD Health Working Papers*, No. 30, OECD Publishing.

Joumard, I., C. André and C. Nicq (2010), "Health Care Systems: Efficiency and Institutions", *OECD Economics Department Working Papers*, No. 769, OECD Publishing.

Józan, P. (2009), "Csökkenő kardiovaszkuláris mortalitás, javuló életkilátások, új epidemiológiai korszak kezdete Magyarországon" (Decreasing Cardiovascular Mortality, Starting the New Epidemiological Age in Hungary), *Informatika és menedzsment az egészségügyben*, Vol. 8, No. 4.

Kaposvari, C. and J. Vitrai (2008), "Snapshot of Health Inequities in Hungary: Small Area–Level and Social Inequities in Health Care Needs", HealthMonitor Research and Consulting.

Kertesi, G. (2000), "A cigány foglalkoztatás leépülése és szerkezeti átalakulása 1984 és 1994 között (The Decline and Restructuring of Roma Employment between 1984 and 1994)", *Közgazdasági Szemle*, No. 5, pp. 406–443.

Kopp, M.S. (2007), "The Central–Eastern European Health Paradox: Why are Men More Vulnerable in a Changing Society?", in R. Ennals (ed.), *From Slavery to Citizenship*, John Wiley and Sons.

Kósa, K., L. Daragó and R. Ádány (2009), "Environmental Survey of Segregated Habitats of Roma in Hungary: A Way to be Empowering and Reliable in Minority Research", *European Journal of Public Health*, August 2011, Vol. 21, No. 4.

Kósa, Z. *et al.* (2007), "A Comparative Health Survey of the Inhabitants of Roma Settlements in Hungary", *American Journal of Public Health*, Vol. 97, No. 5.

Kutzin J., C. Cashin and M. Jakab (eds.) (2010), *Implementing Health Financing Reform: Lessons from Countries in Transition*, Observatory Studies Series, No. 21, European Observatory on Health Systems and Policies.

Lindberg, A-L. *et al.* (2006), "Arsenic Exposure in Hungary, Romania and Slovakia", *Journal of Environmental Monitoring*, Vol. 8, No. 1.

Mahoney, M. *et al.* (2004), *Equity Focused Health Impact Assessment Framework*, Australasian Collaboration for Health Equity Impact Assessment.

Masseria, C., P. Mladovsky and C. Hernández–Quevedo (2010), "The Socio–economic Determinants of the Health Status of Roma in Comparison with Non–Roma in Bulgaria, Hungary and Romania", *European Journal of Public Health*, Vol. 20, No. 5.

McClellan, M. (2011), "Reforming Payments to Healthcare Providers: The Key to Slowing Healthcare Cost Growth While Improving Quality?", *Journal of Economic Perspectives*, Vol. 25, No. 2.

Moïse, P. and E. Docteur (2007), "Pharmaceutical Pricing and Reimbursement Policies in Sweden", *OECD Health Working Papers*, No. 28, OECD Publishing.

Nolte, E. and M. McKee (2008), "Measuring the Health of Nations: Updating an Earlier Analysis", *Health Affairs*, Vol. 27, No. 1.

OECD (2004), *Towards High–Performing Health Systems*, The OECD Health Project, OECD Publishing.

OECD (2008a), OECD Economic Surveys: Greece 2008, OECD Publishing.

OECD (2008b), *Pharmaceutical Pricing Policies in a Global Market*, OECD Health Policy Studies, OECD Publishing.

OECD (2008c), The Looming Crisis in the Health Workforce: How Can OECD Countries Respond?, OECD Health Policy Studies, OECD Publishing.

OECD (2009), *Achieving Better Value for Money in Health Care*, OECD Health Policy Studies, OECD Publishing.

OECD (2010), *Improving Value in Health Care: Measuring Quality*, OECD Health Policy Studies, OECD Publishing.

OECD (2011), *OECD Health Statistics* (database), OECD Publishing.

Orosz, E. and I. Holló (2001), "Hospitals in Hungary: The Story of Stalled Reforms", *Eurohealth*, Vol. 7, No. 3, LSE Health.

Papp, P. and F. Előry (2004), "The State of Infrastructure of Our Hospitals", *Egészségügyi Gazdasági Szemle* (Journal of Health Economics), Vol. 42, No. 5.

PHAMEU (2010), Primary Health Care Activity Monitor for Europe, EU Public Health Action Programme, *www.phameu.eu*.

Simoens, S. and S. de Coster (2006), "Sustaining Generic Medicines Markets in Europe", Research Centre for Pharmaceutical Care and Pharmaco–economics, Leuven University, April.

Simoens, S. and J. Hurst (2006), "The Supply of Physician Services in OECD Countries", *OECD Health Working Papers*, No. 21, OECD Publishing.

SUMANAS (2005), Sustainable Management and Treatment of Arsenic Bearing Groundwater in Southern Hungary, European Commission Project, LIFE05 ENV/H/000418, *www.korkovizig.hu/life*.

Sussex, J. (2004), "Principles of Capital Financing and Capital Charging in Health Care Systems", *HNP Discussion Paper*, World Bank.

Szende, A. and A.J. Culyer (2006), "The Inequity of Informal Payments for Health Care: The Case of Hungary", *Health Policy*, Vol. 75, No. 3.

Szűcs, S., A. Sárváry, M. McKee and R. Ádány (2005), "Could the High Level of Cirrhosis in Central and Eastern Europe be Due Partly to the Quality of Alcohol Consumed? An Explanatory Investigation", *Addiction*, Vol. 100, No. 4.

Tobias, M. and L. Yeh (2009), "How Much does Health Care Contribute to Health Gain and to Health Inequality? Trends in Amenable Mortality in New Zealand 1981–2004", *Australian and New Zealand Journal of Public Health*, Vol. 33, No. 1.

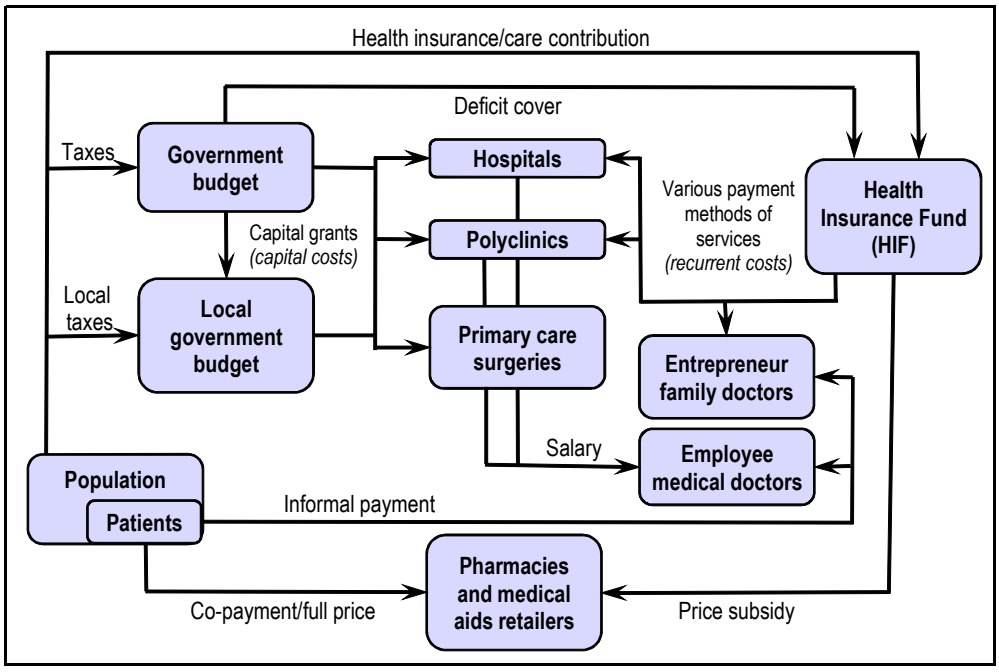
Vokó, Z. *et al.* (2009), "Does Socioeconomic Status Fully Mediate the Effect of Ethnicity on the Health of Roma People in Hungary?", *Journal of Epidemiology and Community Health*, Vol. 63, No. 6.

WHO (World Health Organization) (2008), The World Health Report 2008. Primary Health Care (Now More Than Ever), WHO.

ANNEX

Health care system organisation

Figure A.1. **Flow of funds in the health care system**



Source: P. Gaál (2004), *Health Care Systems in Transition: Hungary*, WHO Regional Office for Europe on behalf of the European Observatory on Health Systems and Policies.

WORKING PAPERS

The full series of Economics Department Working Papers can be consulted at www.oecd.org/eco/workingpapers/

960. Towards a more inclusive labour market in Hungary
(June 2012) by Rafał Kierzenkowski

959. Ensuring stability and efficiency of the Hungarian financial sector
(June 2012) by Olena Havrylchyk

958. Ensuring debt sustainability amid strong economic uncertainty in Hungary
(June 2012) by Pierre Beynet and Rafał Kierzenkowski

957. *Improving the health-care system in Poland*
(April 2012) by Hervé Boulhol, Agnieszka Sowa and Stanislawa Golinowska

956. *Options for benchmarking infrastructure performance*
(April 2012) by Mauro Pisu, Peter Hoeller and Isabelle Joumard

955. *Greenhouse gas emissions and price elasticities of transport fuel demand in Belgium*
(April 2012) by Tom Schmitz

954. *Bringing Belgian public finances to a sustainable path*
(April 2012) by Tomasz Koźluk, Alain Jousten and Jens Høj

953. *Climate change policies in Poland – minimising abatement costs*
(April 2012) by Balázs Égert

952. *Income inequality in the European Union*
(April 2012) by Kaja Bonesmo Fredriksen

951. *Reducing poverty in Chile: cash transfers and better jobs*
(April 2012) by Nicola Brandt

950. *Tax reform in Norway: A focus on capital taxation*
(April 2012) by Oliver Denk

949. *The short-term effects of structural reforms: an empirical analysis*
(March 2012) by Romain Bouis, Orsetta Causa, Lilas Demmou, Romain Duval and Aleksandra Zdzienicka

948. *Short-term gain or pain? A DSGE model-based analysis of the short-term effects of structural reforms in labour and product markets*
(March 2012) by Matteo Cacciatore, Romain Duval and Giuseppe Fiori

947. *Do house prices impact consumption and interest rate?: Evidence from OECD countries using an agnostic identification procedure*
(March 2012) by Christophe André, Rangan Gupta and Patrick T. Kanda

946. *Assessing the sensitivity of Hungarian debt sustainability to macroeconomic shocks under two fiscal policy reactions*
(March 2012) by Pierre Beynet and Edouard Paviot

945. *Non-Keynesian effects of fiscal consolidation: an analysis with an estimated DSGE Model for the Hungarian economy*
(March 2012) by Szilárd Benk and Zoltán M. Jakab

944. *Work incentives and recent reforms of the tax and benefit system in Hungary*
(March 2012) by Tímea Ladányi and Rafal Kierzenkowski

943. *Building blocks for a better functioning housing market in Chile*
(February 2012) by Aida Caldera Sánchez

942. *The impact of changes in second pension pillars on public finances in Central and Eastern Europe*
(January 2012) by Balász Égert

941. *Improving energy system efficiency in the Czech Republic*
(January 2012) by Artur Radziwill

940. Structural change and the current account: the case of Germany
(January 2012) by Fabrizio Coricelli and Andreas Wörgötter

939. *Reforming education in England*
(January 2012) by Henrik Braconier

938. *The nature of financial and real business cycles: The great moderation and banking sector pro-cyclicality*
(January 2012) by Balázs Égert and Douglas Sutherland

937. *Fiscal consolidation*
Part 6. What are the best policy instruments for fiscal consolidation?
(January 2012) by Robert P. Hagemann

936. *Fiscal consolidation*
Part 5. What factors determine the success of consolidation efforts?
(January 2012) by Margit Molnar

935. *Fiscal consolidation*
Part 4. Case studies of large fiscal consolidation episodes
(January 2012) by Hansjörg Blöchliger, Dae-Ho Song and Douglas Sutherland

934. *Fiscal consolidation*
Part 3. Long-run projections and fiscal gap calculations
(January 2012) by Rossana Merola and Douglas Sutherland

933. *Fiscal consolidation*
Part 2. Fiscal multipliers and fiscal consolidations
(*forthcoming*) by Ray Barrell, Dawn Holland and Ian Hurst