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Improving the Health-Care
System in Poland

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Stanislawa Golinowska,
Patrizio Sicari**

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ABSTRACT/RÉSUMÉ

Improving the health-care system in Poland

Since the transformation following the Communist era, Poland has matched improvements in health outcomes of the most developed OECD countries, although without catching up the ground lost during the 1970s and 1980s. The health status of the population remains relatively poor, although after controlling for per capita income health outcomes are only slightly below the OECD average. The Polish health-care system is characterised by low spending, a heavily regulated public system with a stringent budget constraint, restricted sub-national government autonomy and a thin private insurance market. Heavy out-of-pocket payments and long waiting lists generate inequalities in access to care. The most pressing issues to be addressed concern: easing the substantial limitations in access to care; reducing persistent inequalities; carefully designing new private health insurance; better coordinating among major public actors; improving hospital management; strengthening the gate-keeping function played by generalists; and developing a comprehensive long-term-care strategy. This Working Paper relates to the *2012 OECD Economic Review of Poland* (www.oecd.org/eco/surveys/Poland).

JEL classification codes: I1

Keywords: Health-care system; health-care insurance; pharmaceuticals; waiting lists; hospitals; physicians; Poland

Améliorer le système de soins de santé en Pologne

Depuis qu'elle a opéré sa transformation post-communiste, la Pologne a enregistré des progrès comparables à ceux des pays de l'OCDE les plus développés dans le domaine de la santé, sans toutefois parvenir à regagner le terrain perdu au cours des années 70 et 80. L'état de santé de la population reste relativement mauvais même si, après contrôle du revenu par habitant, les indicateurs de santé ne sont que légèrement inférieurs aux moyennes de l'OCDE. Le système de santé de la Pologne se caractérise par de faibles dépenses, un système public fortement réglementé et assujéti à des contraintes budgétaires strictes, une autonomie limitée des autorités infrarégionales et un marché de l'assurance privée peu développé. Les dépenses élevées laissées à la charge des patients et les longues listes d'attente engendrent des inégalités d'accès aux soins. Les priorités les plus pressantes sont les suivantes : alléger les lourdes restrictions d'accès aux soins ; réduire les inégalités persistantes ; mettre en place de nouvelles formules d'assurance-maladie privée soigneusement conçues ; mieux coordonner les principaux acteurs publics ; améliorer la gestion des hôpitaux ; renforcer la fonction de filtrage des médecins généralistes ; et élaborer une stratégie complète en matière de soins de longue durée. Ce Document de travail se rapporte à l'*Étude économique de l'OCDE de la Pologne 2012* (www.oecd.org/eco/etudes/Pologne).

Classification JEL : I1

Mots-clés : Système de santé ; assurance médicale ; médicaments ; listes d'attente ; hôpitaux ; docteurs ; Pologne

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Improving the health-care system in Poland

By

Hervé Boulhol, Agnieszka Sowa, Stanisława Golinowska and Patrizio Sicari¹

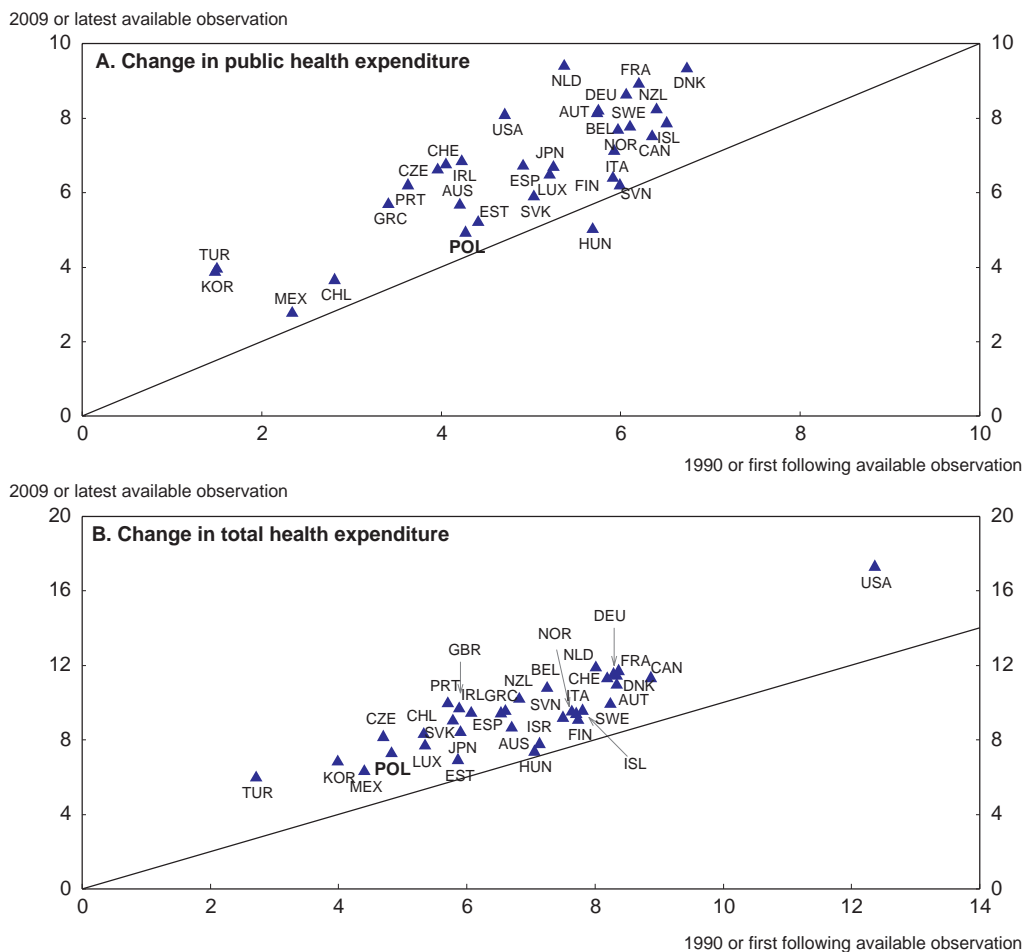
With the post-Communist transformation Polish health outcomes have improved at about the same pace as in most developed countries, therefore without making up the ground lost during the preceding decades. Hence, despite this improvement, health status appears weak in cross-country comparison. Poland spends a relatively low share of its GDP, about 7.4%, on health care, and this share, although on the rise over the past 20 years, has increased less than in most OECD countries (Figure 1). However, once per capita incomes are taken into account, Poland's health-care aggregate inputs and output performance are broadly in line with the average (see Figure 2 and below).

Health care is an area where government involvement is inevitable (Box 1). Notwithstanding potential efficiency gains, public health-care spending is very likely to increase in Poland in the forthcoming decades. Indeed, rapid ageing, projected income growth and cost-increasing technology prospects are likely to generate mounting health- and long-term care needs. As a result, health spending might exert significant but manageable strains on public finance in the forthcoming decades, provided that budgetary discipline prevails over this longer-term horizon. Needed extra resources should be financed by savings on other public expenditure items and possibly by additional revenues, which should be levied on tax bases that are least detrimental to economic performance, such as property and environmental taxes, and by cutting tax expenditures.

The most pressing issues to be addressed in the Polish health-care system concern: easing the substantial limitations in access to care; reducing persistent inequalities; better coordinating among major public actors; improving hospital management; strengthening the gate-keeping function played by generalists; carefully designing private health insurance; and developing a comprehensive long-term-care strategy.

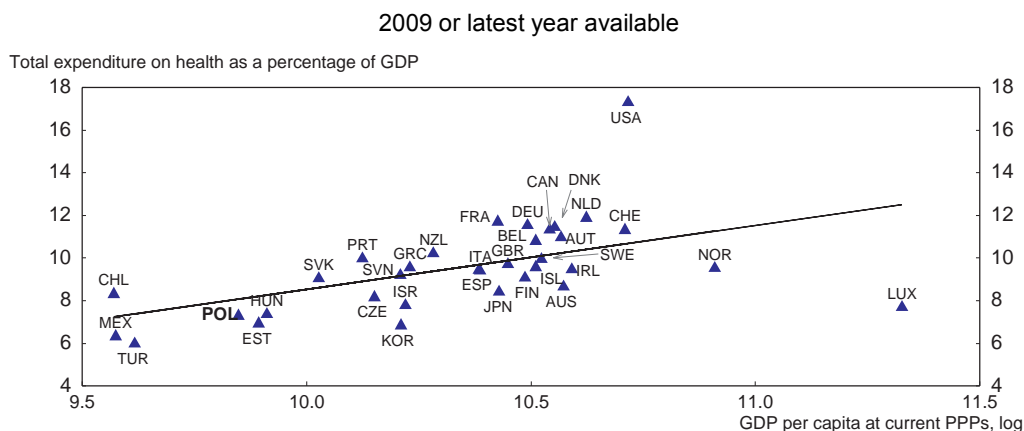
1. This paper was produced for the OECD *Economic Survey of Poland* published in March 2012 under the authority of the Economic and Development Review Committee. Hervé Boulhol is Senior economist in the OECD Economics Department. Agnieszka Sowa is a sociologist and economist at the Center for Social and Economic Research and Institute of Labour and Social Studies in Warsaw. Stanisława Golinowska is an economist at the Center for Social and Economic Research in Warsaw and Institute of Public Health, Department of Medical Sciences, Jagiellonian University in Cracow. Patrizio Sicari is research assistant in the OECD Economics Department. The authors are thankful to Andrew Dean, Robert Ford, Peter Jarrett, Isabelle Joumard, Andrzej Kwiecinski, Gaetan Lafortune, Yuki Murakami, Valérie Paris, Artur Radziwill and Polish government officials for their valuable comments on previous drafts. The authors also thank Mee-Lan Frank for excellent technical preparation.

Figure 1. Long-term trends in health expenditure
As a percentage of GDP



Source: OECD, OECD Health data 2011.

Figure 2. Health expenditures are modest but consistent with Poland's economic development level



Source: OECD, OECD Health data 2011 and National Accounts Database 2011.

Box 1. Public intervention in health care

Good health is a prerequisite for individual well-being, and health care is an integral component of social protection. Key objectives of health-care systems include the provision of both high-quality health-care services and insurance against major life risks. In addition, inequalities in health status are much less accepted than those in other areas. Fundamental moral reasons induce societies to devote substantial resources to providing health care as well as an equitable and efficient system of health insurance to their citizens, which makes government involvement inevitable (Cutler and Zeckhauser, 2000).

Health-care spending tends to grow faster than GDP in OECD countries as greater affluence enables nations to devote more resources to health care. Health seems to have superior-good characteristics, but the extent to which health spending grows faster than income is subject to debate. However, the causality also runs the other way: better health improves productivity and education performance, reduces absenteeism, extends working life and raises the incentive to acquire human capital. While the quantitative importance of health for economic growth is the subject of ongoing research (see Weil, 2011), Durlauf *et al.* (2005) show that life expectancy is one of the most robust determinants of economic growth.

Market failures in the health sector are rife. First, externalities arise from communicable diseases and immunisation. Second, health is also characterised by a high level of informational asymmetries among providers, payers and patients. The principal-agent relationship that results from this asymmetry is prone to induce paternalism, thus blurring the normative relevance of patients' willingness to pay (Hurley, 2000). Third, adverse selection and moral hazard in health-insurance markets prevent the competitive equilibrium from being efficient. Fourth, the health sector is highly R&D intensive, which intrinsically generates substantial fixed costs and increasing returns to scale, which in turn calls for heavy regulation of property rights and pricing. But formulating public policies to correct health-market imperfections is tricky, and badly designed health-related social policies and moral hazard might generate an overconsumption of health-care services, thus weighing on public finances.

Structure of the health-care system

The current health-care system was developed as a result of reforms that were conducted between 1989 and 2004. Highly centralised under Communist rule, it remained fully funded by general taxation until 1999, when the mandatory public health insurance was created, initially under the management of one occupational (for uniformed services) and 16 regional Sickness Funds. This decentralisation hindered patient mobility between regions because of complicated bureaucratic procedures and resulted in many cases of abuse and corruption due to an underdeveloped system of control (European Commission, 2010). The National Health Fund (NFZ) was created in 2003 through the merger of the Sickness Funds.

Tight budget constraint

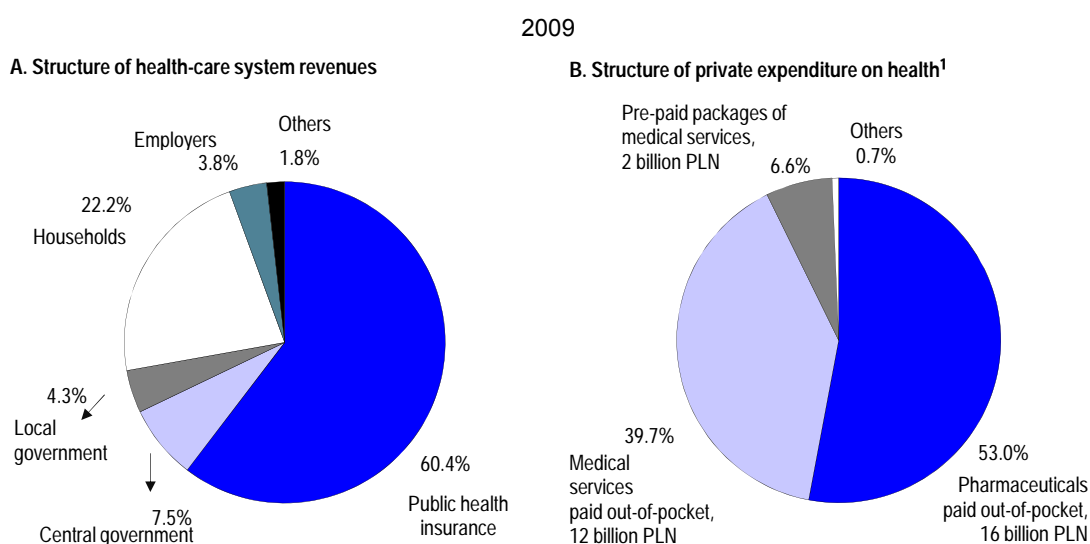
The wide ranging cross-country dataset collected by the OECD in 2008 allows the identification of the main features of the Polish health care system.² Poland belongs to a group of countries with: a heavily regulated public system in which the budget constraint is particularly stringent; large provider choice for patients; restricted sub-national government autonomy; and limited “over-the-basic” insurance coverage, *i.e.* the share of both the population and spending covered by private insurers over and above the “basic” insurance package (OECD, 2010a). Hungary, Ireland, Italy, New Zealand, Norway and the United Kingdom tend to share similar characteristics (OECD, 2010a).

2. This dataset contains detailed information on health policies and institutions governing health insurance and coverage, health-care delivery, and the allocation and management of public health-care spending. It comprises 269 mainly qualitative variables covering 29 OECD countries.

Overall, public spending accounts for 72% of health-care financing, which is similar to the OECD average. After having fallen from 90% at the beginning of the 1990s, that share has not changed substantially over the last decade. The level of public health-care spending is a joint decision of the Ministries of Health and Finance. Since its creation, the mandatory public health-insurance contribution, paid to the Sickness Funds and then to the NFZ, has become the main source of public funding, financing about 85% of the cost of public purchase of health-care services (Figure 3, Panel A). The health-care contribution is a fixed proportion of (uncapped) wages and thus does not reflect individual health risks. It has risen from 7.5% of gross wages (estimated separately for the employed, self-employed and farmers) after the 1999 reform to 9% since 2007. However, as 7.75 of these 9 percentage points represent a tax credit, making effective income tax rates much lower than their apparent levels, the central government still effectively finances a large part of health care. Moreover, non-working spouses are freely co-insured, which increases both the tax of taking up a job (even though this effect is limited by the tax credit), thus discouraging the employment of second earners, and the non-wage labour costs for those who pay (OECD, 2010b). Removing the free co-insurance would come at the cost of taxing marriage where only one of the couple works. Public health insurance covers employees, the self-employed, the unemployed receiving benefits, and the retired and disabled. The government also pays a health-insurance premium for farmers, the unemployed who do not receive benefits, people on leave to raise young children, and soldiers. As a result, almost everyone (about 98% of the population) is covered by public insurance. However, strangely, there is no system for controlling patients' public insurance status, such as a simple identity card.

Besides covering the health-insurance premium of selected groups of the population, central and local governments are responsible for reimbursing the costs of health services for certain groups of the uninsured, financing specific health programmes, emergency and lifesaving services and highly specialised medical procedures such as organ transplants and heart surgery. Also, while the NFZ covers the costs of medical services, local governments fund the every-day operational costs of hospital facilities (gas, electricity, water), the maintenance of buildings, repairs and renovations, and investments in medical equipment.

Figure 3. Structure of the health-care system's revenues



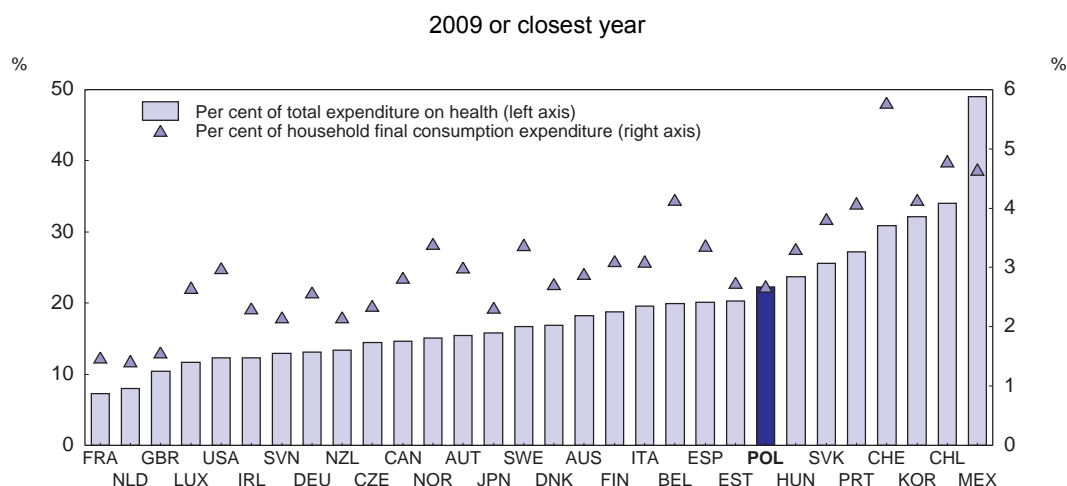
1. Percent of total private expenditure on health.

Source: OECD, OECD Health Data 2011 (Panel A); Ministry of health 2011 (Panel B).

Large share of out-of-pocket payments

Overall, Poland is one of the OECD countries where out-of-pocket expenditure as a share of total health-care expenditure is the largest, although not in relation to household consumption (given the relatively low level of total health-care expenditure) (Figure 4). Given the importance of private resources to finance health care and the absence of a (formal) private insurance system, household expenditures are largely out of pocket (rather than private insurance premiums). Pharmaceuticals account for more than half of private expenditure (Figure 3, Panel B), and for those with long-term illness and retirees, that share rises to about 75% (Green Book, 2009). Specialist medical services paid out of pocket, typically consultations provided at private medical facilities, is the second largest component of private expenditure. Pre-paid packages of medical services are also purchased by employers from specific providers. These packages include occupational medicine as well as primary and secondary treatments and have been growing in importance in recent years. While a decade ago services were offered only to employers covering their employees, more recently packages of medical services covering primary and specialist care have been developed for private individuals (but they remain marginal). All these services are formally distinct from private insurance, in particular because they are not regulated by insurance laws.

Figure 4. **Household out-of-pocket expenditure on health care**



Source: OECD, OECD Health Data 2011.

National Health Fund (NFZ)

The NFZ has the primary not-for-profit task of providing access to publicly insured health-care services. Run under the principle of institutional separation between the provider and the payer functions, the NFZ cannot own entities engaged in the provision of health care, ensuring in principle equal treatment of providers. The NFZ is fully responsible for needs assessment, and medical services contracting and control. It operates 16 regional branches, which have some autonomy, as, for example, in the tendering process for health-care services.

In addition to contracting services, the NFZ also finances selected public-health programmes, prescription medicines in ambulatory care, experimental programmes, rehabilitation and spa treatments, as well as long-term care. Since 2008, the list has been broadened to include highly specialised procedures, which were previously financed directly from the general government budget. It was not until 2009 that legislation first mentioned the so-called guaranteed health-care services basket, which is a broad list of

medical services covered by public health insurance, excluding such medical procedures as plastic surgery, vaccinations against influenza, sex-change operations and *in vitro* procedures.

Provider payment mechanism

Primary-care providers are paid by capitation (a flat fee per patient), while the payment scheme for outpatient specialist care is fee for service. Most primary care, independent of ownership status, is still covered by public health insurance. The share of privately owned ambulatory care units increased from 42% in 2000 to 82% in 2009, and the overall utilisation of ambulatory care has been increasing: for example, there were 6.8 doctor consultations per inhabitant in 2008, compared with 5.3 in 1999. Primary care also has a gate-keeping function aimed at limiting spending on specialist care by requiring patients to get a referral to see (most) specialists and receive non-emergency hospital care. Many individuals purchase services in the private market in order to overcome barriers in access to specialists. The main recent change in secondary- and tertiary-care financing was the introduction in hospitals (in 2008) and in parts of ambulatory care (in 2010) of the new system of Diagnostic Related Groups (DRGs) based on the British Health Care Resources Groups.

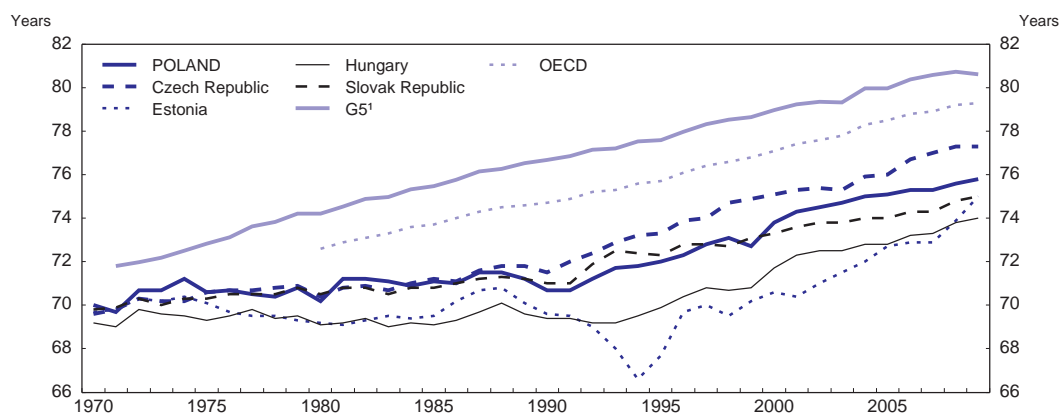
Aggregate health outcomes are broadly consistent with the country's level of development

Steady improvement in health outcomes following the transformation period

Since the mid-1990s gains in life expectancy have tended to match those in developed countries (Figure 5 and Table 1). Other measures of health outcomes, such as life expectancy at age 65, total mortality rates and premature mortality (the so-called potential years of life lost)³ are tightly correlated across countries and have followed similar trends, while infant mortality displays a looser link to life expectancy overall. The total (age standardised) mortality rate of the Polish population decreased by 28% between 1990 and 2008 (from 1.07 to 0.77 percentage point of population), with a decrease in mortality due to cardiovascular system (CVS) diseases by 40%. CVS system diseases and cancers have been the focus of health policy through the National Programme of Prevention and Cure of Cardiovascular System Diseases (POLKARD) and the National Programme to Overcome Cancers, which were set up and legislated in 2003 (completed in 2008) and 2005, respectively. These programmes focused on prevention, early intervention and easier access to treatment innovations. The improvement in health status is also attributable to changes in lifestyle, such as decreasing alcohol consumption and smoking (especially among men), and increasing physical activity (Okolski, 2004; Golinowska and Sowa, 2006). Economic development has also triggered an improvement in the quality of food consumed, especially fresh fruits and vegetables, and has led to beneficial dietary changes, such as replacing the consumption of animal with vegetable proteins (Zatoński and Willett, 2005). However, despite this improvement, Poland's health outcomes appear weak in cross-country comparison (Figures 6 and 7).

3. Potential years of life lost is a summary measure of premature mortality providing an explicit way of weighting deaths occurring at younger ages (see OECD, 2009).

Figure 5. Trends in life expectancy at birth for the total population



1. G7 less Canada and the United Kingdom, due to missing values in the period.

Source: OECD, OECD Health Data 2011.

Table 1. Gains in life expectancy

Countries	Average 1985-1989	Average 2005-2009	% change	Countries	Average 1985-1989	Average 2005-2009	% change
Turkey	64.1	73.4	14.5	United Kingdom	75.1	79.7	6.2
Korea	69.9	79.4	13.7	Switzerland	77.4	81.9	5.9
Slovenia	72.5	78.4	8.2	Poland	71.3	75.4	5.8
Ireland	74.1	79.8	7.7	Belgium	75.2	79.6	5.8
New Zealand	74.5	80.3	7.7	Spain	76.8	81.1	5.6
Czech Republic	71.5	76.9	7.5	Norway	76.4	80.6	5.6
Luxembourg	74.5	79.9	7.3	Hungary	69.6	73.4	5.5
Portugal	73.7	79.0	7.2	Japan	78.3	82.5	5.4
Austria	74.8	80.1	7.1	Denmark	74.8	78.6	5.1
Israel	75.5	80.8	7.0	Sweden	77.1	81.0	5.0
Mexico	70.2	75.0	6.8	Iceland	77.6	81.3	4.8
Germany	74.9	79.9	6.8	Slovak Republic	71.1	74.5	4.8
Australia	76.1	81.3	6.8	Estonia	70.3	73.5	4.6
Italy ²	76.2	81.4	6.7	Canada ¹	76.9	80.4	4.6
Finland	74.8	79.6	6.5	Netherlands	76.6	80.1	4.5
OECD	74.2	78.9	6.4	Greece	76.5	79.7	4.2
France	76.0	80.8	6.3	United States	74.8	77.8	4.0

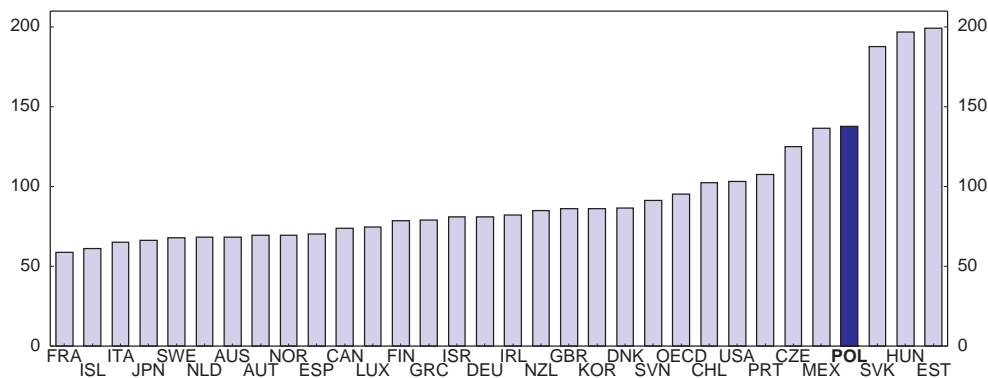
1. Average 2005-2007.

2. Average 2005-2008.

Source: OECD, OECD Health data 2011.

Figure 6. Amenable mortality in OECD countries, 2007 or nearest year

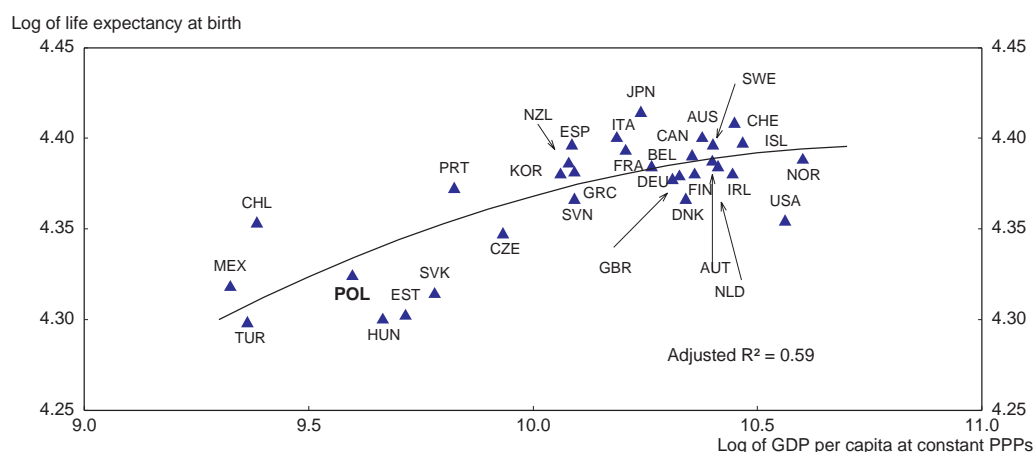
Nolte and McKee's list, age standardised rates per 100 000 population



1. This graph presents a set of estimates for amenable mortality for OECD countries, based on the widely-used list developed by Nolte and McKee in 2008. Estimates based on the list developed by Tobias and Yeh in 2009 provide similar results.

Source: 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.

Figure 7. Health performance is related on the overall development level of the economy, 2008



Source: OECD, OECD Health Data 2011 and National accounts databases.

Outcomes close to average once level of development is controlled for

Once GDP per capita is controlled for, Poland's life expectancy is only slightly shorter than the average OECD country's (Figure 7). Other outcome variables as well as the efficiency indicator estimated by OECD (2010a)⁴ and the European Health Consumer Index yield similar results (see Table 2, which shows seven indicators). Once GDP per capita is controlled for, the residuals are linearly scaled such that the mean across countries is equal to 0 and the standard deviation to 1 for each indicator. Overall, Poland

4. The OECD (2010a) efficiency indicator is based on an envelope analysis using life expectancy as an outcome variable and total health-care expenditure as a control. Other efficiency indicators have been computed by OECD (2010a) and yield broadly similar results.

seems to perform close to the average country. It does better (by about 1 standard deviation) in terms of infant mortality but worse as regards total and premature mortality. The best outcomes (conditional on the level of development) are achieved by Chile and Japan, while the United States, the Slovak Republic, Estonia, Hungary and Turkey are seen to perform badly (Appendix).

Table 2. **Health performance**¹

Country	Life expectancy at birth, total population	Life expectancy at 65, total population	Mortality rate, all causes	Infant mortality rate	Premature mortality	Potential gains in life expectancy at birth ²	Euro Health Consumer index ³	Average
Czech Republic	-0.8	-1.2	-1.3	1.1	0.1	-0.3	0.2	-0.3
Estonia	-2.1	-1.3	-1.2	0.6	-1.3	-	0.7	-0.8
Hungary	-1.9	-1.6	-2.2	0.5	-1.4	-1.7	0.9	-1.1
Poland	-0.4	0.1	-1.1	0.8	-1.0	0.5	-0.1	-0.2
Slovak Republic	-1.8	-2.0	-2.2	-0.2	-1.1	-1.6	-1.1	-1.4
Slovenia	-0.4	-0.5	-0.1	1.1	0.4	-	-0.5	-0.0
OECD	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Minimum	-2.1	-2.0	-2.2	-3.7	-3.1	-1.9	-1.9	-1.8
Maximum	2.1	2.3	2.2	1.1	2.7	1.5	2.1	2.1
Adjusted R ²	0.6	0.6	0.4	0.5	0.6	-0.1	0.6	-

Note: For life expectancy at birth as an example, Polish performance is 0.4 standard deviation worse than the OECD average, once GDP per capita is controlled for.

1. A regression is first run for each indicator (in log; for mortality variables, minus log is used) with GDP per capita in PPP terms (in log) and a constant on the right hand side. The corresponding indicator is computed as the residual of that regression divided by the standard deviation of the residuals. By construction, the average of each indicator across OECD countries is equal to 0. The "Adjusted R²" row corresponds to the adjusted R² of that regression.
2. Underlying data are Data Envelopment Analysis (DEA) efficiency scores for 2007 obtained by using two inputs: health-care spending per capita and a composite indicator of the socio-economic environment and lifestyle factors.
3. The EHCI, published by the Health Consumer Powerhouse, measures and ranks the performance of health-care provision in 33 European countries from a consumer point of view.

Source: OECD calculations based on OECD Health Data and OECD (2010), *Health Care Systems: Efficiency and Policy Settings*, OECD Publishing.

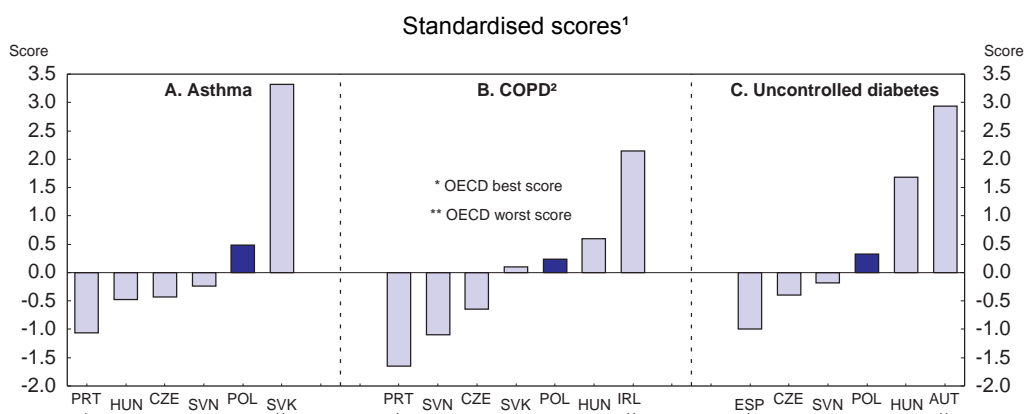
One of the strengths of the Polish health-care system lies in high vaccination rates of children, a feature shared by other Eastern European countries. In addition, the Polish (private) health-care system might have a comparative advantage in delivering health-care services as an internationally traded commodity, since Poland seems to be becoming a popular destination for "medical tourism". According to Zukowski (2010), about 300 000 foreigners (citizens of Germany, Ireland and the United Kingdom are the biggest groups) made use of private Polish health-care institutions in 2009, mainly for dental care, plastic surgery, and orthopaedic and spa treatments.

Some indicators point to inefficiencies

However, other indicators point to various inefficiencies. Hospital admission rates for asthma, chronic obstructive pulmonary disease and diabetes, for which treatment approaches that avoid the need for costly admissions are available, are above the OECD average (Figure 8). Another example is cataract surgery, which can be performed on an outpatient basis at reduced cost. Available data reveal that the share of cataract surgeries carried out without hospital admission varies significantly across countries, from above 97% in Canada, Finland, the Netherlands and Sweden to below 35% in Hungary, Luxembourg, Poland, Slovenia and the Slovak Republic (OECD, 2011a). Overall, the number of hospital discharges (relative to the population) is among the highest within the OECD and in-patient care is an especially large share of total health-care outlays by OECD standards, signalling a potential misallocation of resources and an overuse of hospital care (Figure 9). Also there is a lack of access by providers to information regarding whether people are publicly insured. The recent government attempt to make doctors and pharmacists

liable in case public care and prescription drugs have been provided to non-insured people met fierce opposition. Some people covered by a specific form of temporary contract (*umowa o dzieło*) related to the generation of some intellectual property right (typically freelancers) are not required to pay health-care contributions.

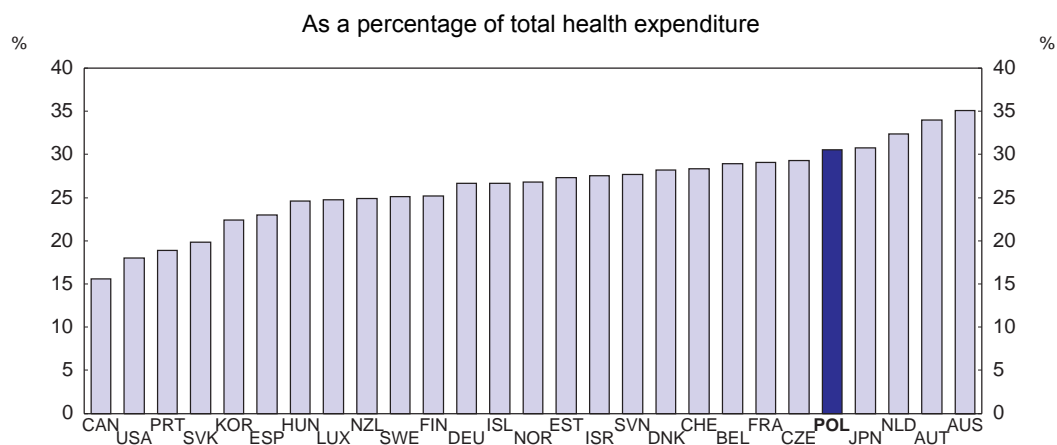
Figure 8. **Avoidable hospital admission rates by main diagnostic category, 2009 or nearest year**



1. Data represent the difference from the OECD average and are expressed in number of standard deviations; original admission rates are age-sex standardised to 2005 OECD population aged 15 and over.
2. Chronic obstructive pulmonary disease.

Source: OECD, OECD Health data 2011.

Figure 9. **Expenditure on in-patient hospital care, 2009 or closest year**



Source: OECD, OECD Health data 2011.

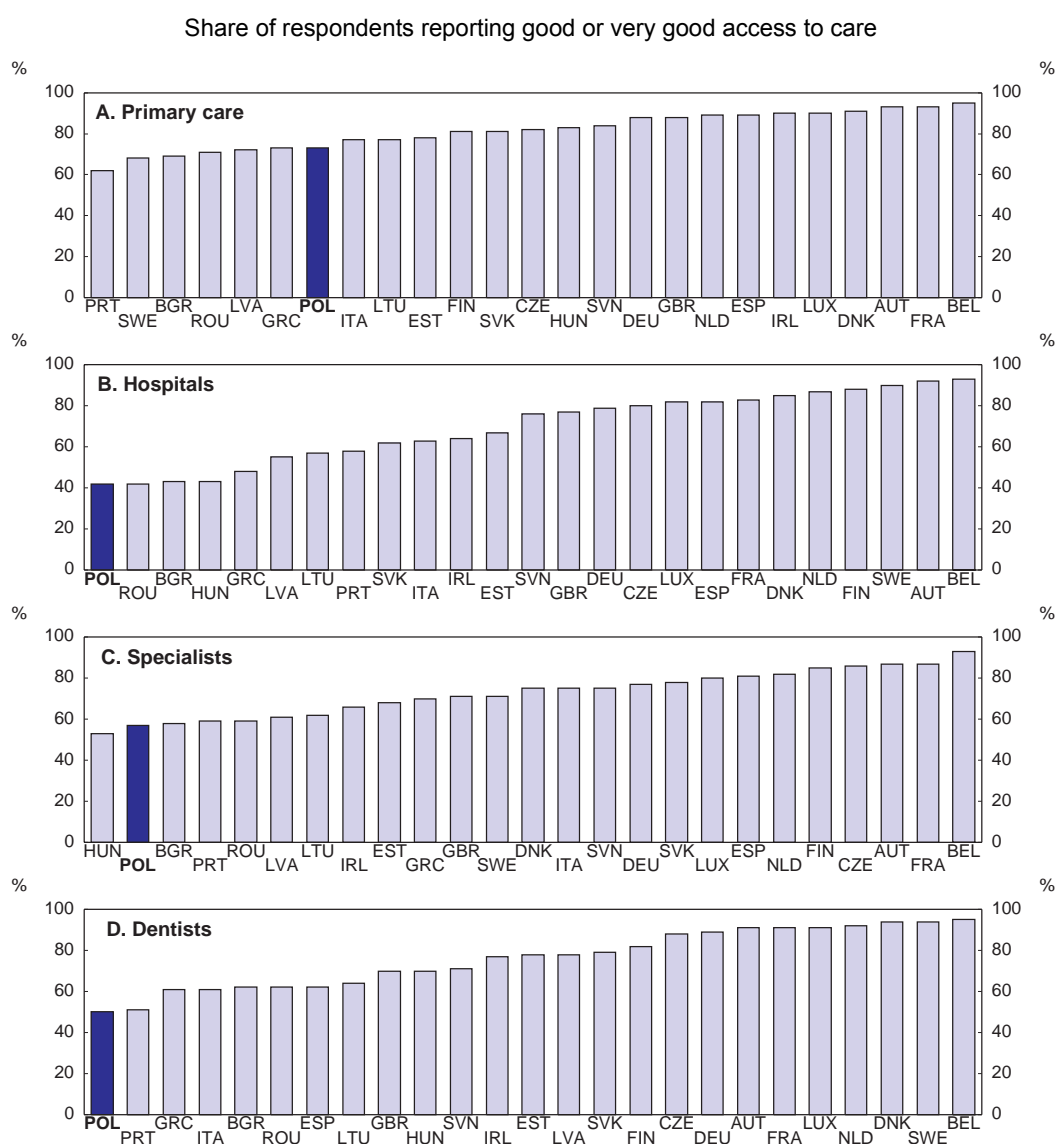
Addressing the substantial limitations in access to care

Poor self-assessed quality of care...

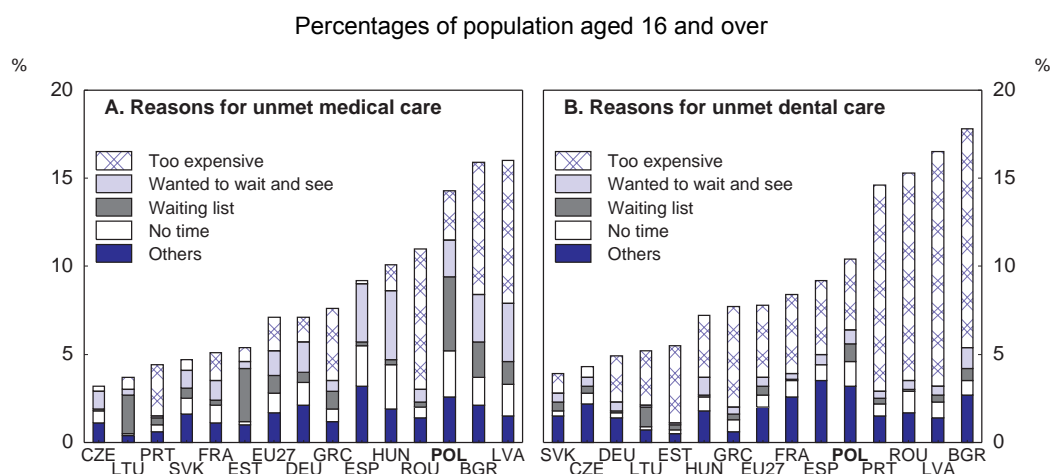
As discussed above, public health insurance covers almost the whole population, as in most OECD countries. However, coverage is an imperfect indicator of both accessibility, which depends on overall supply, the services included and the degree of cost-sharing applied to those services (OECD, 2009), and quality. There are basically no barriers to accessing primary care in Poland. While accessibility to hospital

care seems to be relatively good, accessibility to specialist care is unsatisfactory (European Commission, 2007). Also, the self-assessed quality of care appears to be one of the poorest in Europe (Figure 10), most likely due to poor access to new technologies and long waiting times for highly specialised treatment. The insufficiency of diagnostic equipment (in the public system) is especially visible for cancer, for which an early diagnosis is crucial to successful treatment. For example, access to magnetic resonance imaging (MRI) services is only about a third of the average OECD country level. Furthermore, based on self-reported unmet care needs or health status, Polish health outcomes also appear weak in cross-country comparison (Figure 11).

Figure 10. **Quality of care in the EU27, 2007**



Source: European Commission (2007), Health and long term care in the European Union Report, Special Eurobarometer 283.

Figure 11. **Self-reported unmet care needs, 2009**

Source: Eurostat, SILC database.

... and large persistent inequalities

While issues related to waiting times seem to affect all income groups similarly, those related to financial costs induce inequalities in access to care, even though these inequalities seem to have diminished sharply over the recent past (Table 3). For dental care as an example, about two-thirds of expenditure is financed privately – only basic treatment is covered by the public insurance, and the NFZ has been limiting financing of dental care in recent years (Zukowski, 2010) – leading to highly unequal access. A similar situation may occur for other types of specialist care, for which private services are used to jump queues.

Table 3. **Poland: unmet care needs by income quintile**

Per cent of population

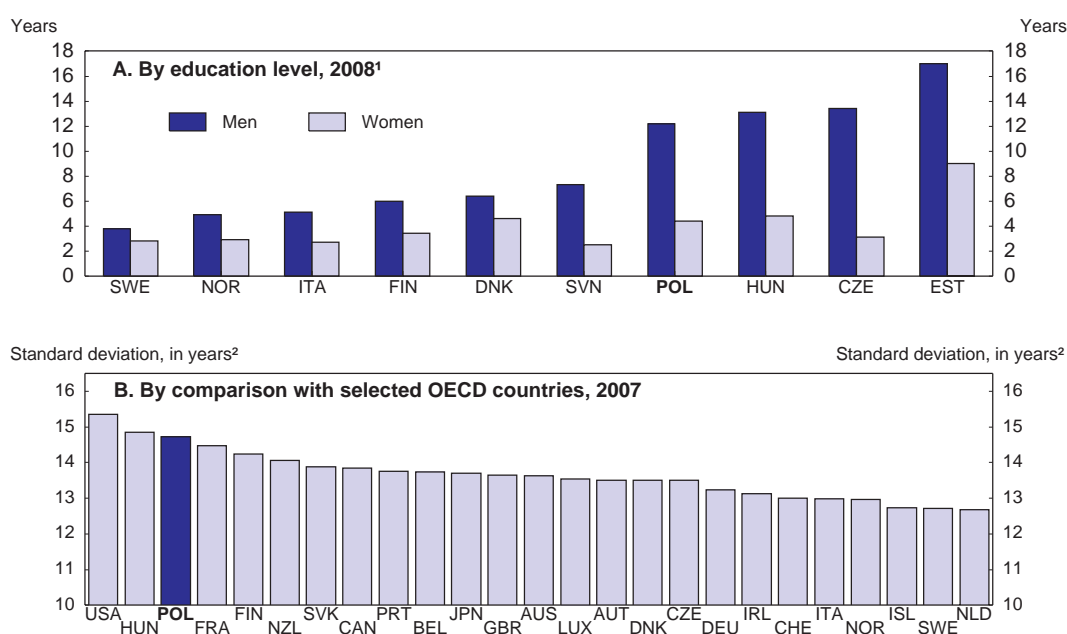
	2004	2009
First quintile		
Too expensive	12.3	5.8
Waiting list	1.6	3.5
Too far to travel	0.3	1.5
Fifth quintile		
Too expensive	2.5	0.8
Waiting list	3.7	4.4
Too far to travel	0.1	0.2

Source: Eurostat, SILC database.

Inequalities with respect to mortality risks are high in Poland as shown by various different indicators. More than in many OECD countries, mortality is greatly influenced by education level, especially for men: life expectancy is 12 years more at age 30 for those with a high educational attainment than those with low attainment (Sowa, 2011 and Figure 12, Panel A). Based on another inequality indicator, the dispersion in the age of death among individuals (although imperfect, this indicator has the advantages of simplicity and availability; see Joumard *et al.*, 2010), Poland's health inequality would be the third highest in the OECD –

after only the United States and Hungary (Figure 12, Panel B). Moreover, the difference in life expectancy at birth between women and men was 8.5 years in 2009, well above the OECD average of 5.6 years and the highest in the OECD except for Estonia. This might also signal risk factors related to lifestyle that could be more prevalent for men: alcohol and tobacco consumption are each indeed high in OECD comparison, while fruit and vegetable consumption is low (OECD, 2011a). It is important to note, as shown by OECD (2010a), that there is no trade-off between improving health outcomes on average and reducing inequalities in health status, which reinforces the justification for aiming at reducing such dispersion. Grimm (2011) even provides evidence that, controlling for the overall level of life expectancy, health inequality negatively affects economic growth. One suggested channel for this result is that labour productivity rises with health outcomes but at a decreasing rate, such that a more unequal distribution of health outcomes might imply lower average productivity.

Figure 12. Health inequalities

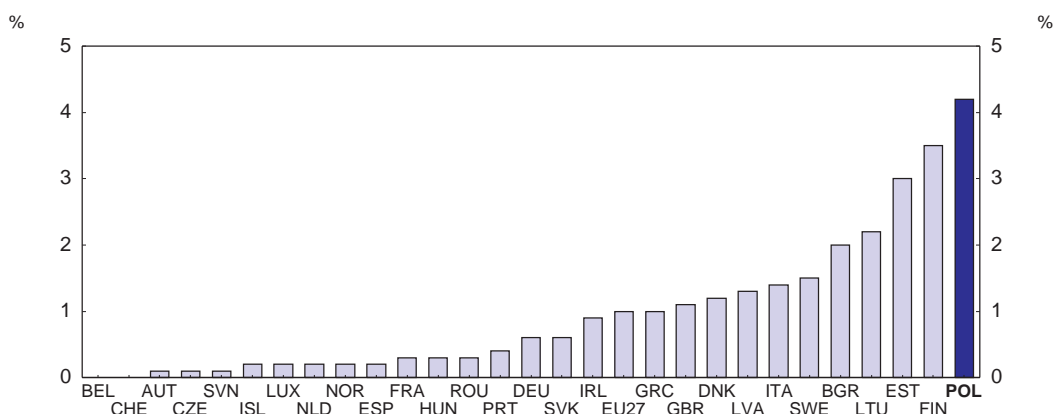


1. Gaps in life expectancy between persons with high and low educational attainment at age 30; data for Italy refer to 2007
2. Standard deviation in mortality ages for population older than 10.

Source: OECD (2011), *How's Life? Measuring Well-Being*, OECD Publishing, for Panel A; Joumard, I., C. André and C. Nicq (2010), *Health Care Systems: Efficiency and Institutions*, *OECD Economics Department Working Papers*, No. 769, OECD Publishing, for Panel B.

Long waiting times tend to reflect inefficiencies

Poland is the European country in which waiting times for medical care restrict access the most (Figure 13). Long waiting times are especially damaging for specialised procedures in cardiovascular system diseases, oncology, orthopaedics and ophthalmology, as well as diagnosis requiring the use of specialised medical equipment. They seem to result mainly from insufficient funding of health care and poor co-ordination of patients' treatment. As could be expected, waiting times differ regionally, depending on the number of specialists, medical facilities and equipment.

Figure 13. **Waiting times restrict access to medical care in Poland¹**

1. Unmet needs in medical care due to excess waiting, as a percentage of population aged 16 and over.

Source: Eurostat, SILC database.

Waiting lists for publicly funded health-care services might be a way to limit spending by non-price means. However, long waiting times are one aspect of poor quality, likely reflecting inefficiencies and generating inequality, as they might impose costs on patients that are not offset by gains to producers and payers. Indeed, waiting lists reduce the value of a treatment because of the extra discomfort, and, for some pathologies, a higher risk of permanent deterioration in health (Gravelle and Siciliani, 2008). While countries with short waiting times happen to spend more on both total and public health care on average and to have higher capacity, they tend also to have higher productivity in delivering health-care services (Siciliani and Hurst, 2004). Indeed, a lack of incentives for higher productivity in hospitals might generate queuing. A short queue is probably desirable, though, since if there were never any waiting list there would be costly periods of idle capacity (Hoel and Saether, 2003).⁵ Overall, however, on both efficiency and equity grounds, the case for lengthy optimal waiting times is weak (Marchand and Schroyen, 2005; Gravelle and Siciliani, 2008).

In Poland, most efforts should focus on seeking efficiency gains and extending supply capacity targeted at reducing waiting lists. Siciliani and Hurst (2005) provide a survey of measures several OECD countries (Australia, the Netherlands, Spain, Sweden, the United Kingdom) have implemented to cut waiting times. On the supply side, they argue that the most efficient way to allocate extra resources to hospitals is to make them specifically conditional upon delivering extra activity and shortening waiting lists. Another would be to specifically link remuneration to extra activity and reductions in waiting times.

The computerisation of patient records through a new project (“e-health”) is also likely to help to improve the administration of waiting lists. Poor use of information technology is often pointed to as a drawback of the Polish health-care system. There are no common standards of collection and use of data, some registers are not electronic, and information systems are not mutually compatible. The implementation of the new legislation on information systems and of the “e-health” programme, which is planned to be completed by 2015, should improve the situation. First, the *Law on Information Systems in Health Care*, in force since January 2012, sets rules for co-ordination and integration of information

5. There are several justifications for permanent queues (Hoel and Saether, 2003). The queue could by itself deter the least needy patients from queuing for treatment. Another possibility is that the illness resolves itself while waiting for treatment. A more subtle argument arises from the existence of a private-sector alternative. In that case, the waiting time might be an equilibrating mechanism making the demand for public treatment equal the supply.

systems and medical registries as well as for on-line access to the integrated system supervised by the Ministry of Health. Moreover, it introduces a System of Medical Information covering individual treatment, providers, medical employees and prices of services provided by public sources. Second, “e-health” aims at integrating working databases, creating both a centralised source of information regarding the history of patients’ treatment and a medical Internet portal available to all interested parties.

Long waiting times encourage informal payments and other queue-jumping mechanisms

Facing difficulties with access to hospital treatment, patients have developed a number of strategies to avoid queuing. Around the end of the 1970s, they began to make informal payments to physicians in order to obtain faster and more personalised service. By the end of the 1980s this practice had become widespread (OECD, 2000), and such payments were often perceived as a supplement to the low salaries of medical staff. Chawla *et al.* (1998) estimated that in the mid-1990s informal payments made by patients to physicians effectively doubled physicians’ salaries. Informal payments can take many forms ranging from small “tokens of gratitude” (such as flowers or bottles of alcohol) to outright cash bribes. The extent to which they are akin to corruption is difficult to assess. In 2005, the government implemented an anti-corruption campaign, which decreased the frequency of informal payments. The Ministry of Health too has been taking steps to reduce corruption and fraud. In 2009, the European Healthcare Fraud and Corruption Network Excellence Award was granted to Mrs. Ewa Kopacz, then Minister of Health, for her anti-corruption and anti-fraud actions.

Nevertheless, Poland’s health service usually ranks unfavourably in all bribery and corruption statistics, often a legacy of the “shadow” economies of Communist countries (Allin *et al.*, 2006). According to a survey conducted in May 2010 by the Public Opinion Research Center, 87% of respondents considered corruption in Poland as a major problem and 44% as a very important one. During the previous four years the latter percentage declined by 4 percentage points. The respondents believed that corruption is most common among politicians and in the health-care system.

Lately, patients needing hospital care have tended to jump the queue by ordering a private consultation (paid out of pocket) with a physician who also works in a public hospital and is responsible for decisions about specialised treatment and, in many cases, surgery. The doctor next arranges the hospital visit and operation without further delay. Queue jumping can also operate via pre-paid schemes, which enable patients to have an operation faster in a public facility based on the contract or arrangement that the pre-paying company has with this facility. Limiting the extent to which specialists are allowed to have dual practices (combining work in publicly and privately funded institutions) has been used by some OECD countries (Ireland, England) to reduce waiting times (Siciliani and Hurst, 2005). Legal rules are needed to better separate the activities in private practices from access to treatment in public facilities in order to ensure equal access. At a minimum, promoting the transparency of dual practices, which is currently insufficient (Golinowska, 2010), is necessary, especially given that specialists working for public hospitals have an incentive to maintain long waiting times for public patients to boost demand for their private practices (Siciliani and Hurst, 2005). Some countries go further by imposing restrictions in terms of either earnings, authorisations or other regulations. Spain, Sweden and the Netherlands forbid specialists from treating private patients in public hospitals (Siciliani and Hurst, 2005).

Limiting out-of-pocket payments and ensuring greater affordability of pharmaceuticals

Out-of-pocket payments also contribute to restricting access. As shown in Figure 4 above, their share in Polish health-care financing is one of the highest in the OECD. However, expenditures borne directly by patients raise equity concerns; they are correlated across countries with catastrophic health expenditures, commonly defined as payments for health services exceeding a threshold (generally 40%) of household disposable income after subsistence needs are met (OECD, 2009). Various studies have shown how private

cost sharing, while limiting moral-hazard issues and reducing health-service utilisation, sometimes efficiently, fosters the privatisation of risk and increases inequality (Wendt, 2009).

In Poland, as in the majority of European countries, price controls for outpatient drugs are limited to pharmaceuticals with reimbursement eligibility, while for non-reimbursable pharmaceuticals, which are often over-the-counter (OTC) products, the manufacturer/importer sets the price freely (PPRI, 2011). In Poland since 2012, the regulated prices for reimbursable drugs are set by the Ministry of Health based on price negotiations between marketing authorisation holders (producers) and the Economic Committee (which is an advisory body of the Ministry). Only a limited number of drugs can be purchased outside pharmacies (52 active substances listed by the Ministry of Health), and pharmaceuticals are provided free of charge in hospitals.⁶

The *Act on Reimbursement of Medicines, Food for Particular Nutritional Uses and Medical Devices*, adopted in 2011, aims at controlling public spending through tighter drug-reimbursement regulation. It introduces a threshold on public spending on drugs set at 17% of NFZ spending on guaranteed medical services, which triggers a producer pay-back above this ceiling. Companies must now return 50% of the total amount of overspending per drug in a given group of reimbursed drugs. In addition, drug companies will no longer be allowed to offer discounts to pharmacists or patients. The size of the discounts was apparently previously underestimated by the NFZ, such that it actually reimbursed a higher-than-planned share of the final price including the discount. This new legislation seems to offer a poor alternative to more aggressive negotiation for lower prices, and letting market forces operate beyond this.

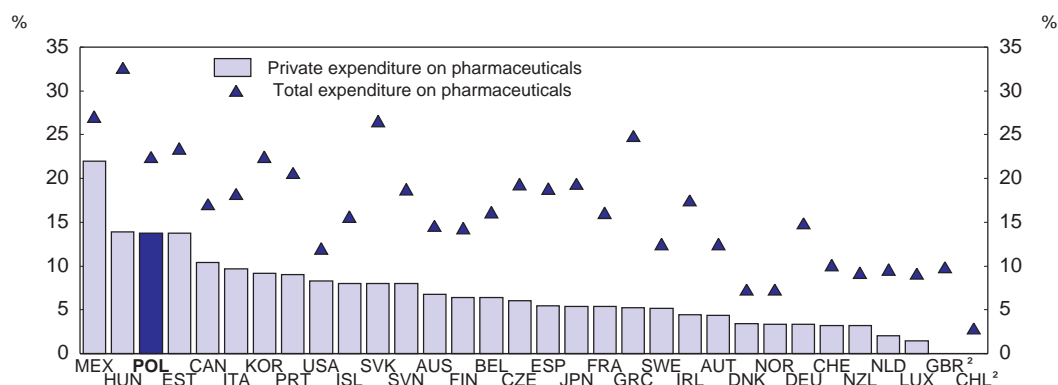
Although decreasing over the past decade from a peak of 30% reached in 2002, the share of pharmaceuticals in total health expenditure is high compared with other OECD countries (Figure 14). Less developed countries tend to have a larger share of drug expenditures for at least two reasons: *i*) pharmaceuticals are a necessity good, which implies a relatively income-inelastic demand; and *ii*) there is a relative-price effect, since in a catching-up country drugs (especially new drugs) tend to be imported at internationally traded prices, whereas other domestic service-type outlays are usually cheaper.

However, high co-payments for prescribed drugs and the lack of coverage by private health insurance (PHI) result in the share of out-of-pocket payments for drugs being the highest in the OECD, (out-of-pocket data for Mexico are missing). It is often argued that Poles have a tendency to over-consume drugs through self-medication. It is true that both financial costs and long waiting times for specialists might induce such behaviour. However, per capita expenditure on drugs is one of the lowest (in PPP terms) across OECD countries (OECD, 2008a). Hence, the high share of out-of-pocket payments on drugs seems to primarily reflect the narrow range of reimbursed medicines.⁷ Private expenditure on drugs in Poland, almost exclusively out of pocket, is 61% of total pharmaceutical spending (excluding hospital expenditure on pharmaceuticals). It clearly exceeds its public counterpart in only four other OECD countries (Canada,

-
6. There are four co-payment levels (30%, 50%, a flat rate of PLN 3.20 per drug package and free of charge) applying to the amount paid within the reimbursement limit. In addition, when the price of a drug exceeds the reimbursement limit, the surcharge over the limit applies and is paid in full by the patient (the so-called “internal reference pricing”). The co-payment level is then based on the treatment duration and the ratio of the standard treatment cost relative to the minimum wage. For example, the flat rate of co-payment applies if the standard treatment duration is over 30 days and its cost exceeds 5% of the minimum wage. Exemptions from co-payments apply to drugs administered in the treatment of cancers, psychotic disorders, mental impairment, developmental disorders and some infectious diseases. Listed drugs are free or with no co-payment up to the reimbursement limit for some population groups (for example soldiers, military invalids and blood and transplant donors).
7. The relatively low price of drugs in Poland implies, however, that spending in volume terms is higher than in value terms compared with other OECD countries.

Estonia, Mexico and the United States). Also, spending on OTC products as a share of pharmaceutical expenditure is by far the greatest in Poland at above 40% of total pharmaceutical expenditure.

Figure 14. **Pharmaceuticals spending as a share of total health expenditures in OECD countries, 2009¹**



1. 2007 for Greece; 2008 for Australia, Korea, Mexico, Portugal and the United Kingdom
2. Not available for private expenditure on pharmaceuticals.

Source: OECD, OECD Health Data 2011.

This structure of drug financing might seriously limit access to medicines especially for the poor, the chronically ill and the elderly. In 2009, only one third of households reported having no financial constraints in buying pharmaceuticals, and 13% of households spent more than 15% of their income on medications alone (Green Book, 2009). Moreover, since 2001, the share of reimbursement in total drugs sales has fallen continuously (Table 4). Luczak (2010) shows that between 2000 and 2009 catastrophic out-of-pocket drug expenditures have been increasingly concentrated on the poor, and argues that most of the increase might be related to the shortening of the reimbursement list in 2004. In December 2011, the reimbursement list was narrowed again as, according to the government, pharmaceutical companies did not reapply for reimbursement and price negotiations failed for some drugs that have cheaper generic substitutes.

Table 4. **Drug sales in Poland**

As a percentage of total drug sales

	2001	2007
Out-of-pocket drugs expenditure	49.2	57.6
Reimbursed drugs	39.1	32.9
Hospitals' use	11.7	9.5

Source: Ministry of Health, *Health Care Financing in Poland: the Green Book 2008*.

In order to limit affordability problems, Poland could adopt some kind of graduated cost-sharing mechanism, such as that implemented in Sweden, whereby co-payments diminish as out-of-pocket payments increase over the course of the year, with a cap on total yearly individual (or family) outlays. Many OECD countries make special coverage provision for those in need, including exemptions and caps on out-of-pocket spending. Accordingly, relatively few patients in OECD countries are unable to obtain needed medicines simply because they cannot afford them (OECD, 2008a). In contrast, in Poland, 50% of people from the lowest income quintile do not purchase prescribed medicines because they are too

expensive, due to the high co-payment level (Luczak, 2010). The social assistance does provide benefits to cover part or total cost of health-care services, but for extreme cases only: income must not exceed a monthly threshold, which is currently set at about PLN 350/480 or EUR 85/115). Beyond pharmaceuticals, exemptions from co-payments based on either income thresholds or out-of-pocket payment caps exist in all OECD countries except Australia, Hungary, Mexico, Poland and Spain (Table 5).

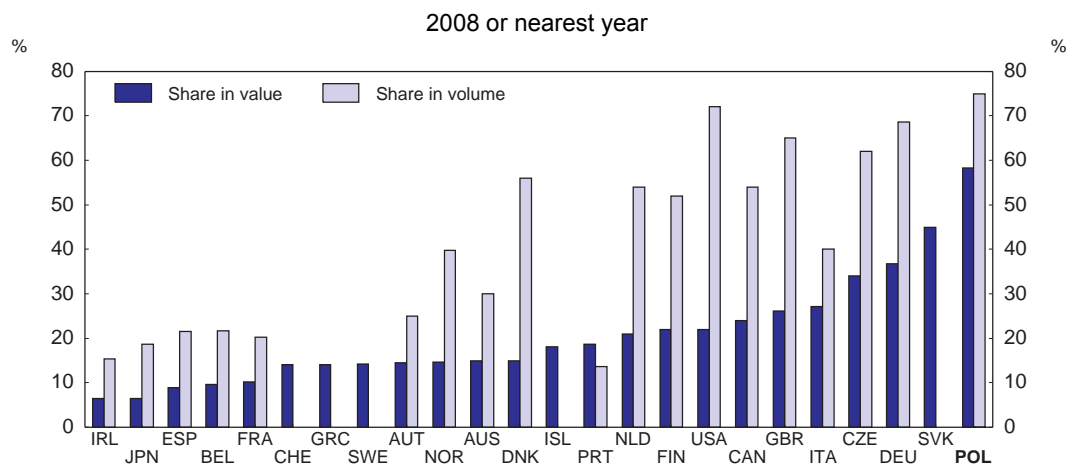
The use of generics is an area where Poland achieves excellent outcomes. Eastern European countries have historically had a stronger focus on the production of generics than on innovative pharmaceuticals, and therefore in these countries local generic manufacturers play an important role. This is particularly the case in Poland, where 12 of 13 drug companies are generics producers (PPRI, 2011). Poland has by far the highest shares of generic drugs market penetration in the OECD (Figure 15), representing 75% in volume terms and 58% in value, which contributes to the comparatively low price of drugs (in Purchasing Power Parity terms) (OECD, 2008a).

Currently, pharmacists are obliged to inform patients of a cheaper equivalent drug with the same active substance (unless the doctor states on the prescription “do not substitute”) and to have the drug in stock. They then provide the cheaper drug on patients’ request. However, in practice, these obligations are rarely met. According to calculations by the Ministry of Health, patient co-payment levels (calculated for reimbursable drugs only) could be reduced from 32% at present to 18%, if patients were always dispensed the cheapest generic drug. With the 2011 *Act on reimbursement of drugs*, pharmacists no longer have any financial incentives to dispense the more expensive drugs, as the mark-ups are equal within the same substance group.

Table 5. Exemptions for co-payments

Countries	For those whose income is under designated thresholds	For those who have reached an upper limit for out-of-pocket payments
Australia		
Austria	X	X
Belgium	X	X
Canada	X	
Czech Republic	X	X
Denmark		X
Finland		X
France	X	
Germany	X	
Greece	X	
Hungary		
Iceland		X
Ireland	X	X
Italy	X	
Japan		X
Korea	X	X
Luxembourg		X
Mexico		
Netherlands		X
New Zealand	X	X
Norway		X
Poland		
Portugal	X	
Slovak Republic	X	
Spain		
Sweden		X
Switzerland	X	X
United Kingdom	X	X

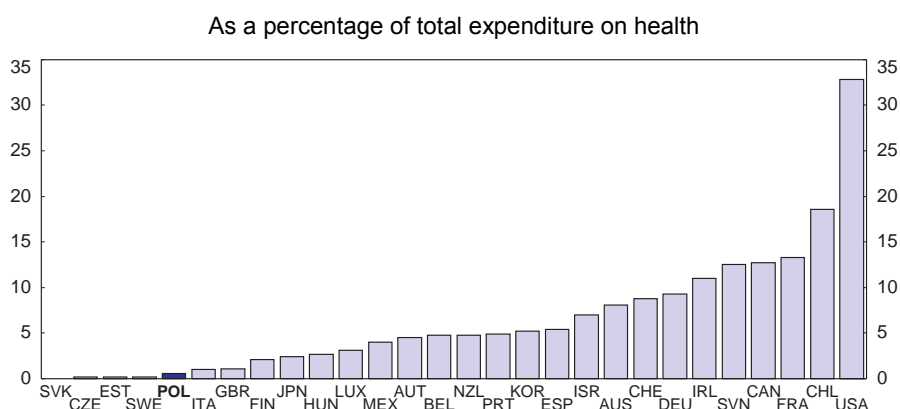
Source: OECD, Value for Money in Health Spending, 2010.

Figure 15. **Generic market shares in Europe**

Source: OECD, Value for Money in Health Spending, 2010.

Carefully designing private health insurance

Another way to reduce the importance of out-of-pocket payments would be to extend insurance coverage through the development of PHI, which plays a very limited role. Figure 16 shows how heterogeneous the size of PHI markets is across countries. In general, countries with high PHI financing shares tend to have low levels of out-of-pocket expenditures (OECD, 2004). Poland has some pre-paid schemes designed to overcome barriers in access to specialists, but they amounted to only PLN 2 billion in 2010, compared to PLN 99 billion for total health-care expenditures, PLN 60 billion for public health insurance and PLN 22 billion for out-of-pocket payments. For at least a decade these services have been offered to employees by some employers. These pre-paid schemes cover rather low-risk populations: people active in the labour market and their families. The way they allow queues to be jumped is not entirely transparent.

Figure 16. **Size of private health insurance markets across OECD countries, 2009¹**

1. 2007 for Austria; 2008 for Australia, Japan and Portugal.

Source: OECD, OECD Health Data 2011.

The debate on the need to introduce PHI in Poland has been going on for at least a decade. While competition between public and private payers was originally supposed to follow the creation of the

regional Sickness Funds in 1999, it was postponed due to their operational difficulties, which led to their re-centralisation in 2003. After that, the main obstacle became the lack of a basket of precisely defined guaranteed medical services. The creation of such a basket resulted from a 2008 reform. The growing importance of private funding and the lack of rules about the cooperation between the private and public sectors led the government to formulate a draft law on the introduction of PHI in 2011, but it never made it through Parliament. The main objective was to provide a legal framework for the operation of an optional duplicative medical insurance (which means that the insured person would pay for both the public and private insurance, possibly covering the same type of services) ostensibly in order to: increase accessibility to medical services; develop an additional source of funding and as a result increase the overall level of health-care financing; develop methods to increase the utilisation of medical resources; and improve the quality of medical services. While new legislation might be inspired by this draft law, legislative work is expected to start basically from scratch.

It may be desirable, in order to improve risk-sharing, to shift part of out-of-pocket payments to PHI contributions, especially for drugs, dental and specialist care. This could be combined by better coverage of dental care and reduced coverage of specialist care by the public insurance package. PHI could also be introduced to attract more resources into the health-care system, provide quicker access and make the system more responsive. However, PHI markets generally raise two main challenges. First, as with public insurance, moral hazard due to imperfect agency relationships and adverse selection could lead to excessive expenditures if the price elasticity of demand is high and/or the incentives facing providers are totally disconnected from insurers' interests. Second, while when supply is constrained it may be efficient to ration services on the basis of willingness to pay through voluntary purchase of private insurance, this generates equity concerns (OECD, 2004). Indeed, insurance is not always affordable, and high-income groups are more likely to purchase it. Moreover, the advantages offered by PHI in terms of access to care create inherent disadvantages for those populations without it.

Overall, PHI would likely contribute to improving health-care performance in Poland, but policy makers need to be aware of its possible downsides. As full private coverage of the share not covered by the public package would encourage over-utilisation, some patient cost sharing should be retained in order to maintain individual cost awareness and contain public spending. The integration of insurance and provision of services may also be desirable to align producer and insurer incentives in the delivery of medical care (Cutler and Zeckhauser, 2000). Moreover, the degree of differential access across income groups varies depending on the specific design of PHI, especially with respect to avoiding cream-skimming, as unregulated PHI markets are poorly equipped to ensure access to coverage for people with chronic conditions and other high-risk individuals (OECD, 2004). Indeed, somewhat paradoxically, addressing the equity challenges induced by PHI might even result in increasing overall public health-care expenditure relative to a purely public system (OECD, 2004).

Health-related fiscal issues are important but manageable

In most OECD countries public spending on health and long-term care is likely to put pressure on government budgets in the future, mainly due to ageing, higher incomes, cost-increasing technological progress and reduced family-provided long-term care (Box 2). Indeed, an increase in public expenditure due to rising health needs will probably be difficult to avoid, even though ageing could help to reduce public spending on education and unemployment benefits; the real question – especially given uncertainties about technological progress – is that of its scale.

Box 2. Determinants of the increase in spending on health and long-term care

OECD (2006) suggests that the ageing and income effects may not contribute as much as sometimes thought to increased expenditure. Indeed, while an increase in the share of older age groups tends to boost health-care spending because health needs increase with age, longevity gains could translate into “healthy ageing”. For long-term care, however, there may be less of an offset: extra longevity is unlikely to reduce dependency, and long-term care costs are concentrated on the very old age groups, whose numbers will increase the most. The reason why income gains on their own might not generate tremendous pressure is related to the size of the aggregate elasticity of health expenditure per capita to GDP per capita. The hypothesis that health care is a “superior” good is generally rejected based on micro-data analysis where health spending is found to be relatively inelastic to individual income (implying that health is a “necessity”, even though estimates might be blurred by the extent of insurance coverage). Moreover, evidence that the aggregate elasticity is significantly greater than unity is not very robust (see Oliveira Martins and de la Maisonneuve, 2006, Annex 2B). As a result, long-term financial simulations generally assume an aggregate income elasticity within the range of 1.0-1.2.

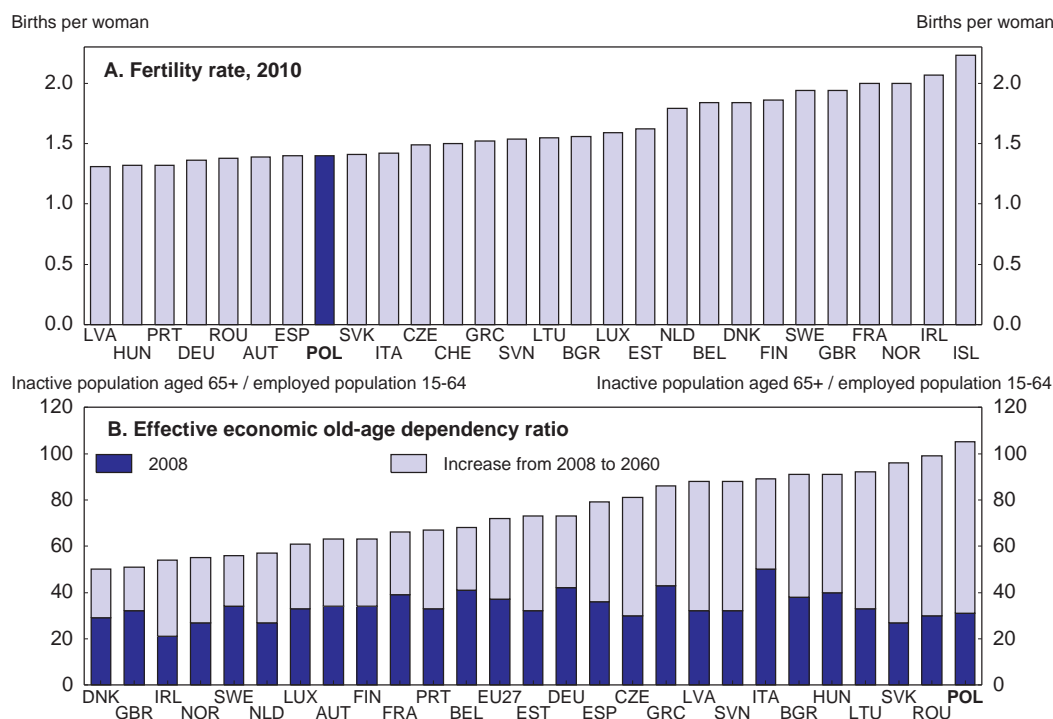
Technological progress is thus considered to have been the major driver of health-care expenditure growth in recent decades. The discoveries of new medical techniques and treatments will keep boosting both demand for and supply of health-care services. Despite some possible beneficial impacts in terms of lower prices, at least for specific treatments, technological progress is therefore likely to raise health-care spending, especially given the market failures highlighted in the text.

In addition, in some countries, including Poland, female labour-force participation is likely to rise substantially, reducing the scope for informal care and boosting demand for public provision (OECD, 2006). Current public expenditures on long-term care in Eastern European countries are significantly lower than in their Western European counterparts. This is due (beyond the aggregate income effect) to a lower demand for these services, given the later population ageing in these countries, and to cultural norms implying greater family responsibility for elderly care. As a result, long-term-care institutions are underdeveloped.

Like most Eastern European countries, Poland’s population will age rapidly. The fertility rate is one of the lowest among the EU27 countries, and the effective old-age dependency ratio – defined as inactive population aged 65 and over as a percentage of employed population aged 15 to 64 – is projected to be the highest in 2060 (Figure 17). While for the EU27 as a whole, that ratio is projected to rise sharply from 37% in 2007 to 72% in 2060, it would surpass 100% in Poland: inactive old people would outnumber the employed population (European Commission, 2009). Overall, OECD (2006) and European Commission (2009) estimate that changes in demography alone will boost public health-care spending in Poland by 0.9% of GDP between 2005 and 2050 and by 1.3% between 2007 and 2060, respectively. The impact of demography on long-term care spending is estimated at 1.9% and 0.7% of GDP, respectively. As for the impact of income gains, an average annual increase of 1.5% in GDP per capita over 40 years would result in a rise in health-care spending of only 0.4% (0.9%) of GDP based on an income elasticity of 1.1 (1.2).

Table 6 summarises the projected increase in health- and long-term-care spending when all factors are taken into account based on OECD (2006) and European Commission (2009). The two estimates are significantly correlated across countries for health care but not for long-term care. According to OECD (2006), the total change in public spending will amount to 3.6% of GDP for Poland over 45 years (2.3% for health care and 1.3% for long-term care). This increase compares with a minimum of 1.5% estimated for Sweden and a maximum of 5.8% for Korea, and is close to the OECD average of 3.4%.

Figure 17. Poland's population will age rapidly



Source: Eurostat, EUROPOP2010 database.

According to European Commission (2009), the estimated impact is smaller: public spending would increase by 1.7% of GDP for Poland over 2007-60 (1.0% due to health care and 0.7% to long-term care). This is lower than the total impact for EU15 countries (2.6% of GDP) and for the 10 “New EU Member States” (2.0%).⁸

The general implication of these projections is that for all countries, including Poland, there will be increasing pressure to conduct sound fiscal policies and improve the efficiency of the health-care system. In Poland's case, those challenges seem to be manageable, given the tight grip on the supply of health services and the currently low level of and controlled growth in health-related public spending relative to other OECD countries. Public health spending is also low relative to total general government outlays (Figure 18), which suggests that public finance consolidation efforts should, as needed, be directed towards other expenditure items. Moreover, realising available efficiency gains in the health-care sector, which are estimated by the OECD at about 1.5% of GDP for public spending in Poland (OECD, 2010c), would help the government to face these ageing challenges.

8. Based on the ILO social budget methodology, Golinowska and Kocot (2010) estimate not only changes in public health expenditures, but also in public health insurance revenues from changes in labour force participation and productivity. Overall, a good part of their estimated increase of 1.3% of GDP in public health-care spending over 2010-50 would be offset by revenue increases, thus raising the government's net borrowing requirement by only about 0.5% of GDP. That the growth in social contributions outpaces GDP gains results from the increase in the labour share in total value added, which is consistent with the European Commission convergence scenario, even though the underlying forces justifying this feature are unclear.

Table 6. Projected increases in public health and long-term care spending by main source, 2005-50

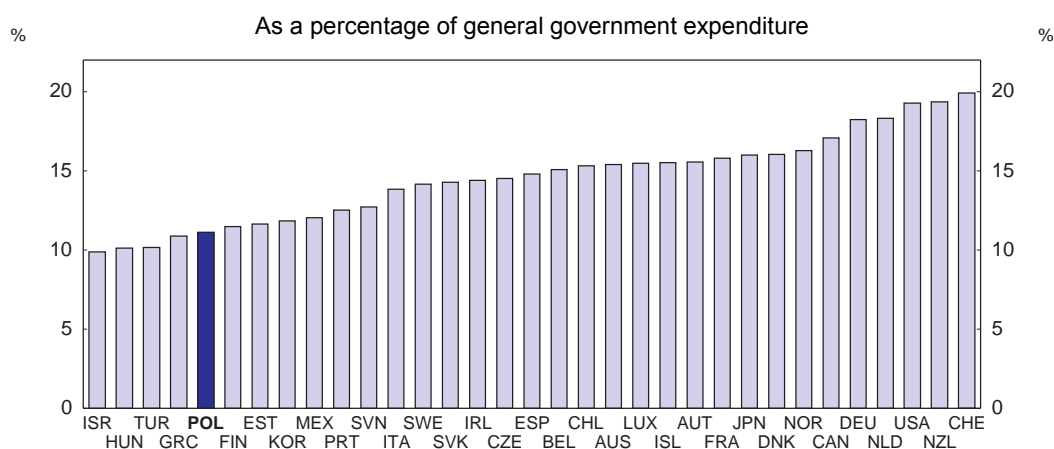
Percentage points of GDP

	OECD (2005-50)			European Commission (2007-60)		
	Health care	Long-term care	Total	Health care	Long-term care	Total
Australia	2.3	1.1	3.4			
Austria	2.0	1.2	3.1	1.5	1.2	2.7
Belgium	1.5	1.1	2.6	1.2	1.4	2.6
Canada	2.2	1.3	3.5	-	-	-
Czech Republic	2.3	1.0	3.3	2.2	0.4	2.6
Denmark	1.7	0.7	2.4	1.0	1.5	2.5
Finland	1.8	1.3	3.1	1.0	2.6	3.6
France	1.7	1.0	2.7	1.2	0.8	2.0
Germany	1.8	1.2	3.0	1.8	1.4	3.2
Greece	2.0	1.8	3.9	1.4	2.2	3.6
Hungary	1.8	0.7	2.5	1.3	0.4	1.7
Iceland	2.1	0.6	2.7	-	-	-
Ireland	2.2	2.4	4.6	1.8	1.3	3.1
Italy	1.9	2.2	4.1	1.1	1.3	2.4
Japan	2.5	1.5	4.0	-	-	-
Korea	3.0	2.8	5.8	-	-	-
Luxembourg	1.9	1.9	3.8	1.2	2.0	3.2
Mexico	2.7	2.9	5.6	-	-	-
Netherlands	2.0	1.2	3.2	1.0	4.7	5.7
New Zealand	2.3	1.2	3.5	-	-	-
Norway	1.6	0.9	2.5	1.3	2.7	4.0
Poland	2.3	1.3	3.6	1.0	0.7	1.7
Portugal	2.4	1.1	3.5	1.9	0.1	2.0
Slovak Republic	2.8	1.2	4.0	2.3	0.4	2.7
Spain	2.3	1.7	4.0	1.6	0.9	2.5
Sweden	1.4	0.1	1.5	0.8	2.3	3.1
Switzerland	1.6	0.7	2.3	-	-	-
Turkey	2.3	0.7	2.9	-	-	-
United Kingdom	1.7	1.1	2.8	1.9	0.5	2.4
United States	1.6	0.9	2.5	-	-	-
OECD average¹	2.1	1.3	3.4	-	-	-

1. Unweighted average.

Source: OECD (2006); European Commission (2009).

Nevertheless, there is no room for complacency, as other scenarios with stronger latent cost pressures are possible. Options to raise revenues may include an increase in the health-insurance contribution rate, the use of other tax bases that are less detrimental to growth, further development of co-payments and broadening of the health social contribution base (for example, by indexing farmers' health-insurance premiums more directly on their incomes). Golinowska *et al.* (2007) report that the central government paid PLN 1.6 billion, or about 30% of the total central-government health-care expenditure, to insure farmers in 2005. This compares with health contributions of PLN 1.1 billion paid from KRUS to NFZ that same year (giving a total of PLN 2.7 billion to insure farmers). In early 2012, the government passed a (transition) law linking farmers' premia to the size of land holdings, but with a low premium (1 zloty per hectare per family member) and only for farmers holding more than 6 hectares, thereby covering only about half of farmers; the measure is supposed to yield only PLN 113 million in 2012. After 2012, the government intends to link farmers' premia to their incomes.

Figure 18. Public expenditure on health care across OECD countries, 2009¹

1. 2007 for Greece; 2008 for Australia, Japan, Portugal and Turkey.

Source: OECD, OECD Health Data 2011.

Improving hospital efficiency

In-patient care represented 31% of total health expenditure in 2009 compared with 27% in 2004 (Figure 9 above). While the total number of hospitals has been broadly stable over the last decade, the share of private hospitals has risen steadily from 5% in 2000 to 30% in 2009 (Table 7). Increased efficiency might be seen from the greater number of hospitalised people and the decrease in the average length of stay (up to a certain limit, the use of hospital beds tends to be more efficient when the number of days per capita spent in the hospital is low), which has been halved over the last 20 years, and Poland now has a shorter average length of stay than the OECD average. At the same time, the occupancy rate has diminished: there remains some overcapacity, as the number of beds per 100 000 inhabitants (441 in 2008) is well above the EU average (383), although it has decreased sharply since 1990 (632). Also, as mentioned above, the data point to excessive use of hospital care, probably resulting in serious inefficiencies and calling for rationalising the resources allocated to hospital care, especially using integrated delivery models.

Table 7 Hospital resources

	Public/ Non-public	2000	2004	2009
Number of hospitals	Public	714	643	526
	Non-public	38	147	228
	Total	752	790	754
Number of beds	Public	189 707	175 631	165 012 ¹
	Non-public	1 583	7 649	18 028 ¹
	Total	191 290	183 280	183 040 ¹
Beds per 10 000 population	Total	49.5	48.0	48.0 ¹
Occupancy rate (in per cent)	Total	76.1	71.8	69.7 ¹
Average stay (in days)	Total	8.5	6.9	5.8 ¹
	Public	6 207 379	6 705 060	7 249 283
Hospitalised persons per year	Non-public	70 686	295 923	781 669
	Total	6 278 065	7 000 983	8 030 952

1. Compared to previous years, figures for 2009 differ slightly in their underlying definition due to a change in the methodology of counting beds in general hospitals. Beds and incubators for newborns are now included.

Source: CSIOZ (Centre for Health Information Systems).

Providing clear incentives to rationalise hospitals' use of financial resources

The financial liabilities of medical providers are one of the most persistent problems in the Polish health-care system. This is due to inefficient supply limitations combined with weak incentives facing hospitals to respect their financial commitments, management deficiencies and an unclear division of responsibilities among the different stakeholders. Tight financial constraints by the payer (NFZ) and owners (local governments, central government and universities) limit the supply of services causing excess demand. However, health-care units are given confusing incentives to manage their budgets efficiently, which generates moral hazard and indebtedness. Indeed, the central government has repeatedly had to take over the liabilities of medical providers (in 1994-95, 1997 and 1998). With the 1999 reform, the liabilities of health-care units were consolidated, and providers restarted with clear accounts. However, this did not stop the process of accumulating further debts, which may act as a safety valve, given budget constraints, such that another government intervention was needed in 2005. As a result, the overall level of public medical providers' net liabilities decreased before stabilising at about PLN 2.5 billion.

In practice, the NFZ has tended to reimburse service providers for excess provision of services. This in turn has created perverse incentives, as they have taken for granted that overproduction will be reimbursed, while debt forgiveness has not rewarded solvent and well managed institutions, potentially generating a misallocation of resources. Moreover, local governments, which are the main level of administration responsible for hospital care, are generally reluctant to close down inefficient and indebted units. Ultimately, it is difficult to gauge whether such a cost-containment policy is effective in setting the appropriate priorities to produce the most useful services.

Corporatisation might generate efficiency gains

The recent global economic crisis has heightened financial pressure on the public health-care system. Given the persistent problem of hospital indebtedness the legislation adopted in 2011 (*Law on Therapeutic Activity*) aims at improving hospitals' cost efficiency and limiting their liabilities through a change in operational framework and in ownership status via corporatisation (or "commercialisation" in Polish parlance). In contrast to privatisation, corporatisation refers to the transformation of the public entity into a state-owned company in order to introduce corporate management techniques. In such a case, the owner, typically a local government, remains the same, but its activity becomes regulated by the code of commercial companies. Any negative financial result that the public medical facility accumulates by the end of each year should be paid off by the owner in the following year; otherwise the medical facility would be closed or transformed. In order to encourage corporatisation, the government agreed to assume part of the debts of those hospitals willing to go through that process until the end of 2013.

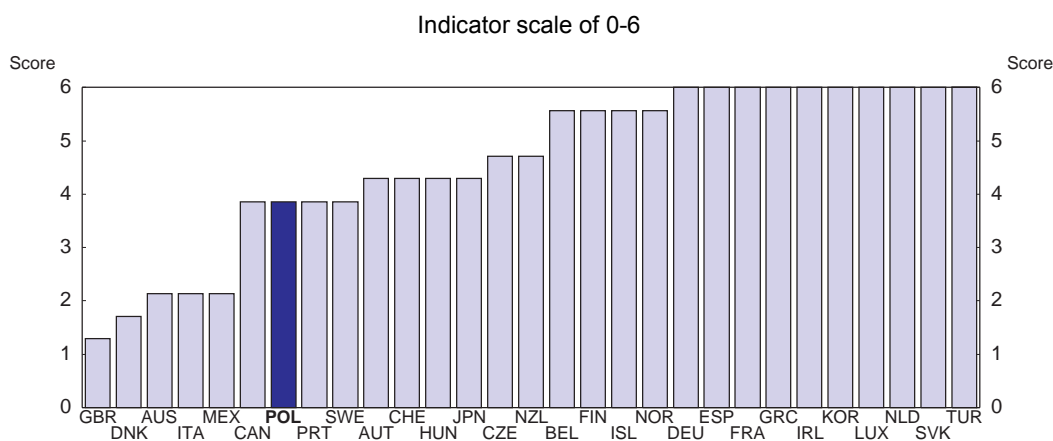
Transformation had already been encouraged in 2009. The Ministry of Health gave hospital authorities an opportunity to transform indebted tertiary-care facilities from publicly owned institutions managed by local governments into companies owned by such governments with the further option to also involve a private investor. In the 2009-11 period, this form of transformation of public health-care units was supported by public resources from the general budget. Moreover, following a process implemented by local governments, 23 local governments had decided to privatise their hospitals by April 2010. Overall, around 117 or 16% of public hospitals have been transformed into commercial companies and seem to be in good financial condition, while providing high-quality health-care services. However, this is also likely to reflect a selection bias: only hospitals that viewed transformation as profitable seized the opportunity. Yet, corporatisation might lead to more effective management and improve quality. In any case, while some hospitals might need to be closed, the 2011 reform should be implemented across regions in such a way that it does not threaten equal access to care. From that standpoint, health-care capacity across the nation, which is in large part inherited from infrastructures developed long ago, might not correctly reflect current health needs. Hence, a broad assessment of the quality of this match is called for.

Improving managerial competencies and coordination

The separation of responsibilities and insufficient cooperation between the NFZ and health-care unit owners has important consequences. Ageing hospital infrastructure has become a serious systemic weakness, and the majority of public hospitals will soon require huge capital expenditures. For example, the average age of buildings used by university hospitals and institutes is 48 years, and only 12% of university hospitals are located in buildings constructed after 1990 (Golinowska *et al.*, 2007). Financing investments is especially thorny, as regional and local governments do not seem to have the resources to invest in medical facilities, and the NFZ has no mandate to do so. As a consequence, as hospitals buy equipment and renovate their wards, they continually fall into debt (Golinowska *et al.*, 2007). Moreover, there is no thorough planning of those investments that correspond to the most pressing needs of the population globally; on the contrary, renovations and investments seem to be conducted in a somewhat random manner. This calls for the adoption of clear responsibilities for financing investments that would better take into account the bigger picture.

The degree of consistency, a measure of the extent to which responsibilities are clearly defined and allocated consistently and with a minimal degree of overlap, is relatively weak in Poland (Figure 19). It declines when several levels of government are involved in key health-care decisions, as is the case, for example, for financing new hospital building and high-cost equipment in several countries, including Poland (OECD, 2010a). Golinowska *et al.* (2007) and Zukowski (2010) highlight the imprecise division of financing responsibilities, differences in financial capacity between entities (NFZ and governments), unstable regulations and the lack of coordination among institutions responsible for health care, especially concerning capital decisions. According to Zukowski, the NFZ should play such a co-ordinating role, including planning of long-term needs, prevention, and financial and quality supervision.

Figure 19. **Consistency in responsibility assignment across levels of government, 2008-09¹**



1. The lower the score, the lower the consistency in responsibility assignment across government levels.

Source: OECD (2010a), Health care systems, p. 112.

Moreover, the so-called “ward-head” system is often viewed as a barrier to rational restructuring efforts. It implies substantial power of physicians, heads of clinics and wards in the management of service provision. Complaints that their choices routinely neglect economic-efficiency criteria have been common (Golinowska *et al.*, 2007). Also, the capacity of universities as hospital owners to perform oversight of management functions is, in fact, limited. University rectors who supervise directors and have an impact on their decisions are typically active researchers and scientists, with few managerial qualifications for solving financial issues or developing strategies to rationalise hospital activity. It follows that

hospital-management skills should be recognised and encouraged as such, including by linking remuneration to performance.

A study conducted by the European Commission (Green Book II, 2009) showed that big hospitals, among which are those run by universities, have greater problems paying off their liabilities. Indeed, the share of university hospitals in total unpaid liabilities, at about 25%, has more than doubled since 2004. The increasing level of indebtedness of hospitals owned by medical academies is related to their dealing with more severe cases, where expensive specialised treatment is needed, but also to the managerial difficulties induced by the traditionally high level of independence of the different clinical departments within these hospitals. This independence means diminished control, including in financial matters, presumably due to their high prestige. If medical universities take the most severe cases, adjusting the DRGs to better account for the severity of cases can be a way to compensate them.

Evaluating the DRG system to ensure a more effective implementation

The DRG system introduced in 2008 relies on a concept of payment according to defined procedures, the number of which exceeds 1 000 (Paris *et al.*, 2010). It was introduced in rehabilitation as well, and attempts have also been made to extend it to ambulatory care, but without success (even though the list of DRGs and other requirements have been settled). Overall, the DRG system effectively promotes transparency, as costs are identified and can be monitored for each DRG at hospital, regional and national levels. On the other hand, services may be classified up to a more profitable DRG, even if it is not medically justified. Efforts are underway to harmonise the method of calculating the costs of health-care services in order to enable their full comparability and increase the possibilities of evaluating the activities of individual service providers. As it is three years since its implementation, an evaluation would now be appropriate to assess the efficiency of the system and identify any weaknesses that need to be corrected. This is important as DRGs, if used properly, can be used to consolidate excess capacities in acute inpatient care.

Improving the career prospects of medical staff and reforming generalists' remuneration

Careers are not sufficiently attractive

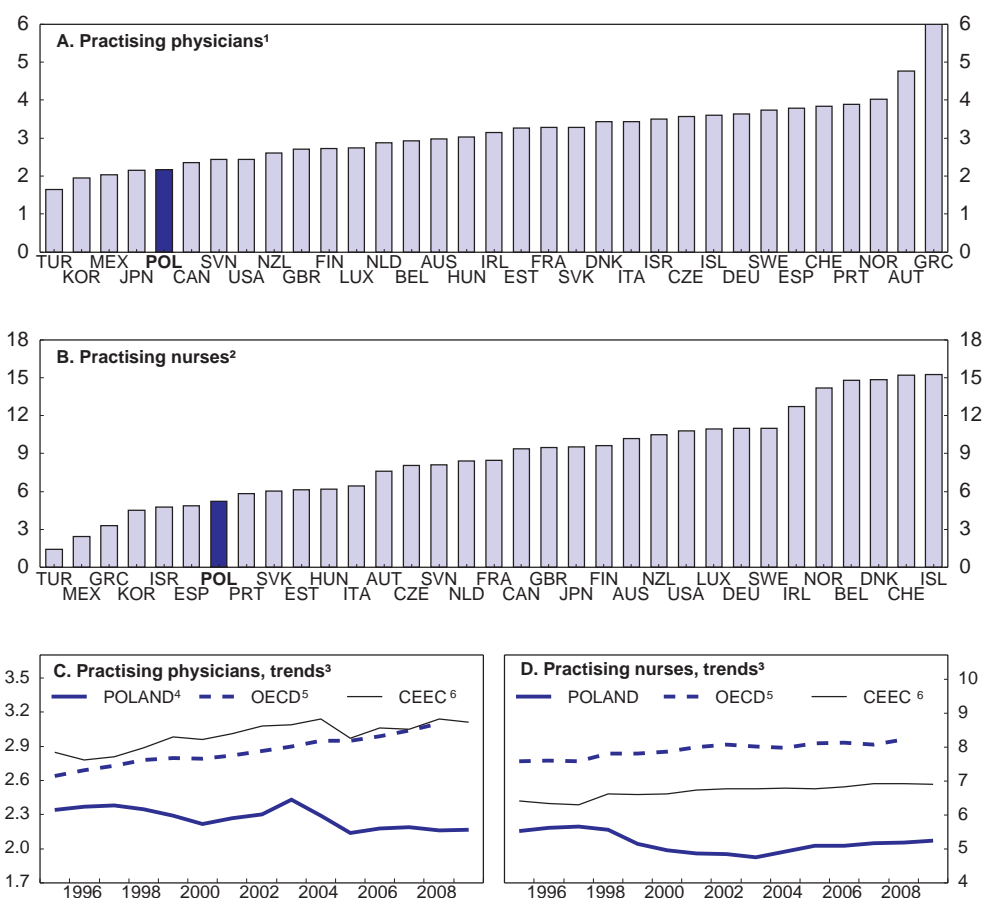
Restraining the volume and price of labour inputs is one direct way of limiting health spending. Setting quotas for medical students (*numerous clausus*) is the most common method of controlling the overall number of doctors over time; these constraints exist in Poland as in all but three OECD countries (OECD, 2010c). Clearly, the number of practising nurses and physicians relative to the population is substantially lower in Poland than the OECD average and even than in other CEEC OECD Members (Figure 20). Addressing these potential shortages might generate some trade-off between the supply and the quality of labour inputs. Whereas initially the education requirements of medical professionals were extended as nurses became obliged to complete higher education and doctors to pass the national medical exam (LEP), shortages in personnel have recently stimulated some changes in medical education through legislation, approved in March 2011, which shortens the period of medical studies and training.

Insufficient staff might also result from insufficient incentives to attract students. While medical professions enjoyed high prestige in the past, higher wages and a less stressful work environment are now available in other sectors. Moreover, richer OECD countries have tended to attract foreign doctors and nurses, while less developed countries have more severe problems with satisfying their need for health professionals (OECD, 2008b). The scale of the brain drain after Poland's accession to the EU in 2004 was not massive. However, the outflow of the highly skilled may have serious consequences locally and in some sectors. The monitoring of migration of medical professionals is based on the registers of certificates confirming qualifications issued by the National Chamber of Physicians for the purpose of taking up

employment abroad. Cumulatively 8 200 doctors, 13 500 nurses and 850 dentists had received such certificates by 2011. In addition, other nurses took up employment abroad in the social or long-term care sectors, where similar certificates are not necessary. Even though wage increases in the health-care sector have started to outpace those for the overall economy (the average wage in the health-care sector increased from 78% of the economy-wide level in 2004 to 93% in 2008), current levels probably remain too low to offer attractive career prospects. Young doctors still undergoing professional medical training were the main beneficiaries of that increase, the goal of the up-rating having been to limit their emigration. On the other hand, the increase in the remuneration of nurses did not substantially improve their relative position.

Figure 20. **Health professionals are lacking**

Per 1 000 population, 2009 or closest year



1. Professionally active physicians for Canada, France, Ireland, Mexico, Netherlands, Slovak Republic, Sweden and Turkey. Physicians licensed to practice for Portugal.
2. Professionally active nurses for France, Greece, Portugal, Slovak Republic, Sweden and Turkey. Nurses licensed to practice for Belgium and Italy.
3. For missing values in the series practising physicians and nurses the series professionally active physicians and nurses has been used.
4. Break in series in 2003.
5. Unweighted averages, computed on 26 and 16 OECD countries for practising physicians and practising nurses, respectively.
6. Excluding Poland, unweighted averages computed on the Czech Republic, Estonia, Hungary, the Slovak Republic and Slovenia.

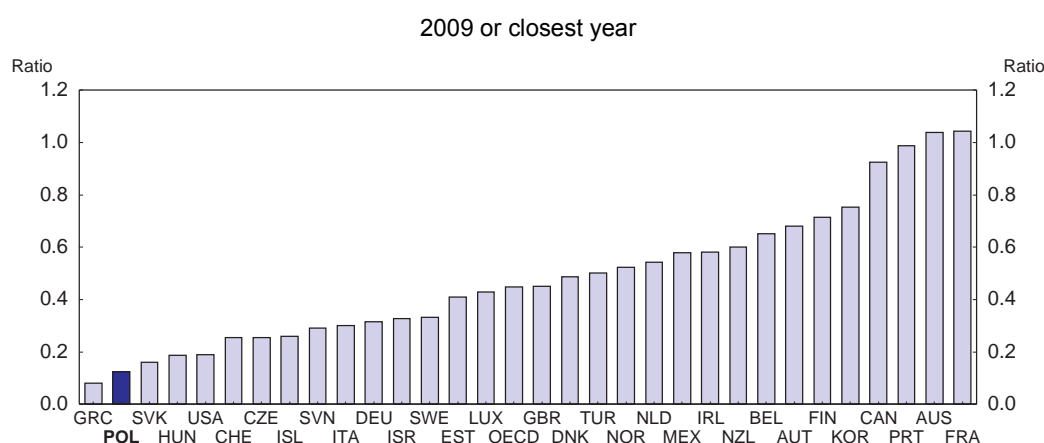
Source: OECD, OECD Health data 2011.

The challenge in responding to the demand for health-sector workers over the next 20 years is broad based across countries (OECD, 2008b). Policy recommendations to address this issue include a mix of measures: training more staff; improving retention, particularly through better management policies and delaying retirement; enhancing re-integration in the health workforce of those who have left it; adopting a more efficient skill mix by enhancing the role of advanced practice nurses and physicians' assistants; improving productivity, in particular by linking pay to performance; and developing targeted immigration policies. In most cases, these solutions are costly, thereby making the problem closely related to the overall constraint on the level of funding of the health-care system.

Improving the gate-keeping function

Another weakness of the system is that the gate-keeping role played by generalists seems to be ineffective. Indeed, the number of generalists per specialist is low, a characteristic shared by other CEECs (Figure 21). Although the cost effectiveness of generalist-provided primary care is broadly recognised, specialists greatly outnumber generalists in these countries. It is therefore essential to strengthen primary-care services through a strong enforcement of the gatekeeping role of primary-care doctors, which might require more training efforts.

Figure 21. **Ratio of general practitioners to specialists¹**



- Doctors are classified in either of three categories: General Practitioners (GPs), Specialists and Other Physicians. For Poland, most of the "Other physicians" might actually be GPs. If these two categories are merged into "GPs" then the ratio of GPs to specialists increases from 0.12 to 0.30 for Poland. Specialists include paediatricians, obstetricians/gynaecologists, psychiatrists, medical specialists and surgical specialists.

Source: OECD, OECD Health data 2011.

One important factor that contributes to health-sector inefficiency is the incentive structure created by provider-payment mechanisms. In primary care, capitation alone is applied, whereby payments per patient are fixed regardless of the quality of services provided, and rates have been set at low levels. Under these circumstances, primary-care physicians tend to refer even minimally justified cases to more expensive outpatient specialist services or to hospitals (Golinowska *et al.*, 2007). Thus, instead of the treatment being concentrated at the least expensive level, the costs are being pushed into more expensive segments. Moreover, no referral is required to access a long list of specialists.⁹ OECD (2010a) recommends that, in

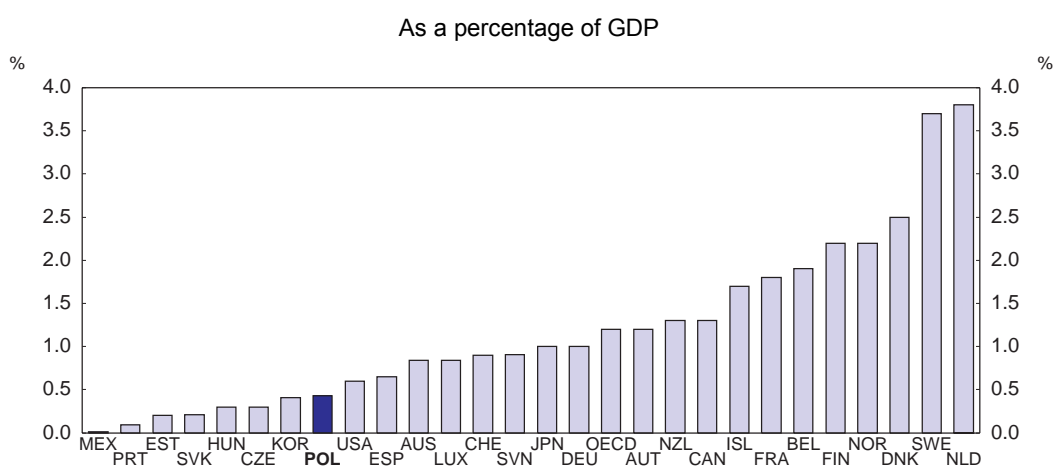
9. This list includes gynaecologists and obstetricians; dentists; dermatologists; oncologists; ophthalmologists; and psychiatrists. Moreover, some groups do not need a referral including: people living with HIV; war and military invalids and veterans; and people addicted to alcohol, narcotics and psychotropic substances.

countries relying solely on capitation (Ireland, Poland and the Slovak Republic), reforming provider-payment schemes should be investigated in both the in-patient and out-patient sectors with a view to introducing an activity-based component into physicians' remuneration. This would lead to a mixed payment system, which is becoming the norm for OECD countries.

Designing a comprehensive long-term care system

Long-term care (LTC) helps those needing support in many facets of living over a prolonged period of time (OECD, 2011b). It includes both health-care and other services and is often provided by family members, friends and low-skill caregivers or nurses. Expenditure on formal health-related LTC represents 0.4% of GDP in Poland and is fully publicly funded. This level, although potentially underreported, is relatively low within the OECD but similar to other less affluent Member countries (Figure 22). In 2008, approximately 0.9% of the over-65 Polish population received long-term care in an institutional setting, well below the OECD average of 4.2% (OECD, 2011b), reflecting a lack of supply.

Figure 22. Public expenditure on long-term care, 2009 or nearest year



Source: OECD, OECD Health data 2011.

Formal residential LTC services are provided either by local governments in residential-care homes within the social-assistance scheme or by “local nurses” (*pielegniarka srodowiskowa*) in care and nursing homes within the health sector. In the social-assistance sector, the provision of home services is tightly constrained by stringent, income-based eligibility criteria¹⁰ and the financial capacities of local governments, while in the health sector residential LTC is provided to individuals who have a high level of health limitations as measured by the Barthel index.¹¹ The health-care sector represents about 20% of all LTC beds, thanks to a more than doubling of LTC beds within that sector over the past decade, while residential social-welfare homes provide about 80% (Golinowska, 2009). In the latter facilities, medical or rehabilitation services are not provided except for nursing, although the elderly living in these facilities often face similar health problems as those living in the facilities managed by health-care authorities. However, due in part to culturally strong family ties, the main responsibility for providing care has

10. The level of maximum eligible income for the cash benefit in the social assistance system is PLN 477 (about EUR 110) per household and PLN 351 (about EUR 80) per person living in a larger household. These levels were set by the Ministry of Labour and Social Affairs in 2006 and have been stable since then.

11. The Barthel test is a standardised assessment of an individual's level of independence in basic everyday life activities.

traditionally fallen on the family, which is estimated to supply approximately 80% of the care to the fragile elderly (Golinowska, 2009). The provision of care is typically the obligation of spouses and children (mainly daughters), inducing a high level of co-residence and contributing to keeping women out of the labour market (Golinowska and Sowa, 2010).

The LTC system is highly fragmented and lacks a comprehensive policy, which would help to satisfy growing needs. Given the projected rapid ageing of the Polish population and without policy changes in the provision of LTC, a growing gap may occur between the number of elderly who are in need of care and the actual supply of formal care services (European Commission, 2009). The increasing participation of women in the labour market may constrain the supply of informal-care provision even further.

The family's role could be supported by the development of home-based social services targeted at people in need of LTC; it could include benefits in cash and in kind targeted on people with a high level of dependency. A similar policy was introduced in the Czech Republic in 2006. Additionally, the access to institutional care and the quality of offered treatment should be improved. Specifically, this requires better adjusting the number of available beds and services to the demand for care, but also monitoring standards of institutional care. So far no national standards for monitoring the quality of institutional care have been introduced, even though they have been defined by appropriate legislation. More generally, the creation of a comprehensive LTC system should aim to: integrate activities of the social-assistance and health-care systems; make eligibility for the social services offered to the elderly dependent on the level of their limitations; and introduce alternative methods of funding through co-payments for home-based social services or some form of long-term care insurance, such as has been introduced in a number of other OECD countries.

Box 3. Recommendations to improve the health-care system

Secure an adequate level of financing, better allocate resources and expand them as needed

- Increase the contribution of farmers much further, and remove the health insurance premium that the central government pays for farmers' health insurance. Extend the social insurance contribution base to uncovered earnings. To avoid discouraging the labour force participation of second earners, remove the free co-insurance of spouses.
- Improve spending efficiency by: reallocating resources from hospitals to primary and long-term care, potentially by integrated health-care delivery models; strengthening the gate-keeping role played by generalists; promoting primary medicine; and boosting training efforts to avoid unnecessary specialist consultations. Introduce an activity-based element into generalists' remuneration through a hybrid system of capitation and fee-for-service payments.
- Avoid labour shortages in the health-care sector by: training more staff; improving retention, particularly through better management policies and delaying retirement; enhancing re-integration in the health workforce of those who have left it; adopting a more efficient skill mix by enhancing the role of advanced practice nurses and physicians' assistants; improving productivity, in particular by linking pay to performance; and developing targeted immigration policies.
- To expand financial resources and make the system more responsive, carefully design a system of complementary and supplementary private insurance (i.e. covering cost-sharing and items not included in the basic public package, respectively) in a way that does not exclude low-income households.

Ensure broader access and reduce inequality

- Make some hospital resources conditional on the specific delivery of extra activity that reduces waiting times, including by linking pay to this objective.
- Extend dental services covered by public insurance, introduce co-payments on medical services and limit out-of-pocket expenditures by introducing a ceiling for such payments in terms of annual income.

- Assess the relevance of introducing a separate public financing scheme to cover long-term care risks. Integrate long-term-care-related activities of the social and health-care systems. Make the social services offered to the elderly dependent on their incapacities rather than their incomes, and consider introducing alternative methods of funding through co-payments for home-based social services. Promote the development of physician specialisation in geriatric care.

Improve efficiency and transparency

- At a minimum, promote the transparency of dual employment in the public and private sectors. Define standards and conditions for the use of public resources by private providers, and monitor their application. Consider whether more stringent restrictions are justified, including outright prohibition of dual practices.
- Improve hospital efficiency by providing clear incentives to rationalise the use of financial resources. In particular, enhance incentives by rewarding (punishing) providers who respect (fail to respect) their financial commitments. Assess the efficiency of the DRG system in overcoming potential weaknesses. Regularly adjust the reimbursement rate to the level of the most efficient hospitals while ensuring adequate quality.
- Promote the development of hospital management skills, including through linking remuneration to performance, with a special emphasis on university hospitals by strengthening financial controls. Adjust the DRG system to better account for the severity of cases dealt with by university hospitals so as to compensate them. Implement the planned corporatisation (or “commercialisation”) of hospitals carefully in a way that does not threaten equal access to care, especially across regions.
- Improve consistency by streamlining responsibilities between the NFZ and central and local governments and promoting coordination. Carry out a thorough study of those investments that would correspond to the most pressing needs of the population across the country to ensure that ageing hospital infrastructure is modernised. Extend the coordination role of the regional NFZ branches, in particular concerning investment decisions.
- Develop a simple information system to ensure that providers can clearly identify who is covered by public insurance. Enhance computerisation to generate efficiency gains and shorten waiting lists.

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Appendix

Health performance¹

Country	Life expectancy at birth, total population	Life expectancy at 65, total population	Mortality rate, all causes	Infant mortality rate	Premature mortality	Potential gains in life expectancy at birth ²	Euro Health Consumer index ³	Average
Australia	0.6	0.7	0.8	-0.4	0.3	1.5	-	0.6
Austria	-0.1	-0.0	-0.0	-0.2	-0.1	-0.2	0.8	0.0
Belgium	-0.4	-0.2	-0.8	0.1	-0.7	-0.4	-0.2	-0.4
Canada	0.2	0.4	-0.0	-0.9	-0.5	0.3	-	-0.1
Chile	2.1	-	2.2	1.1	2.7	-	-	2.1
Czech Republic	-0.8	-1.2	-1.3	1.1	0.1	-0.3	0.2	-0.3
Denmark	-1.0	-1.3	-1.5	-0.3	-0.6	-1.6	1.5	-0.7
Estonia	-2.1	-1.3	-1.2	0.6	-1.3	-	0.7	-0.8
Finland	-0.4	0.1	-0.1	0.5	-0.6	-1.0	-0.5	-0.3
France	0.7	1.1	0.7	-0.0	-0.2	0.7	1.1	0.6
Germany	0.0	-0.0	-0.2	0.1	0.1	-0.3	1.1	0.1
Greece	0.4	0.1	0.3	0.8	0.4	-1.1	-1.9	-0.2
Hungary	-1.9	-1.6	-2.2	0.5	-1.4	-1.7	0.9	-1.1
Iceland	0.4	-0.2	0.5	0.5	1.1	1.3	0.9	0.6
Ireland	-0.5	-0.7	-0.5	0.1	-0.4	-0.7	-1.2	-0.5
Israel	0.9	0.7	0.6	-0.3	0.7	-	-	0.5
Italy	1.1	0.9	0.8	0.1	0.8	0.6	-0.8	0.5
Japan	1.7	2.0	1.8	0.6	1.1	1.3	-	1.4
Korea	0.4	0.2	0.6	0.1	0.4	1.4	-	0.5
Luxembourg	-0.1	-0.1	-0.1	0.8	0.5	-0.8	-0.5	-0.0
Mexico	0.8	2.3	1.1	-2.3	-0.8	0.9	-	0.3
Netherlands	-0.3	-0.7	-0.1	0.4	0.5	-0.2	2.1	0.3
New Zealand	0.7	0.9	0.4	-0.4	-0.3	0.1	-	0.2
Norway	-0.2	-0.5	0.0	0.3	0.1	0.3	-0.8	-0.1
Poland	-0.4	0.1	-1.1	0.8	-1.0	0.5	-0.1	-0.2
Portugal	0.9	0.8	0.6	1.1	0.9	0.6	0.0	0.7
Slovak Republic	-1.8	-2.0	-2.2	-0.2	-1.1	-1.6	-1.1	-1.4
Slovenia	-0.4	-0.5	-0.1	1.1	0.4	-	-0.5	-0.0
Spain	1.2	1.3	0.9	0.3	0.8	0.5	-1.3	0.5
Sweden	0.4	-0.1	0.3	0.5	0.7	0.5	0.1	0.4
Switzerland	1.0	1.1	0.7	-0.4	0.5	1.4	0.5	0.7
Turkey	-0.5	-0.7	-	-3.7	-	0.6	-	-1.1
United Kingdom	-0.4	-0.4	0.1	-0.6	-0.2	-0.9	-1.1	-0.5
United States	-1.9	-1.2	-1.2	-1.9	-3.1	-1.9	-	-1.8
Adjusted R ²	0.6	0.6	0.4	0.5	0.6	-0.1	0.6	-

Note: For life expectancy at birth, Polish performance is 0.4 standard deviation worse than the OECD average, once GDP per capita is controlled for.

1. A regression is first run for each indicator (in log; for mortality variables, minus log is used) with GDP per capita in PPP terms (in log) and a constant on the right hand side. The corresponding indicator is computed as the residual of that regression divided by the standard deviation of the residuals. By construction, the average of each indicator across OECD countries is equal to 0. The "Adjusted R²" row corresponds to the adjusted R² of that regression.
2. Underlying data are Data Envelopment Analysis (DEA) efficiency scores for 2007 obtained by using two inputs: health-care spending per capita and a composite indicator of the socio-economic environment and lifestyle factors.
3. The EHCI, published by the Health Consumer Powerhouse, measures and ranks the performance of health-care provision in 33 European countries from a consumer point of view.

Source: OECD calculations based on OECD Health Data and OECD (2010), *Health Care Systems: Efficiency and Policy Settings*, OECD Publishing.

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