

<http://hdl.handle.net/1765/110571>



# The impact of the crisis on the health system and health in Lithuania

Gintaras Kacevičius, Marina Karanikolos

*Published in: Maresso A, Mladovsky P, Thomson S, Sagan A, Karanikolos M, et al. (eds.)  
Economic crisis, health systems and health in Europe: country experience. WHO Regional  
Office for Europe, Copenhagen, 2015*



## INTRODUCTION

In 2009, Lithuania faced a deep financial crisis. GDP fell by 15% and unemployment more than tripled in one year. In response, the government implemented strict fiscal consolidation measures (see Appendix 1). Public funding for the health system was partially protected from large reductions in SHI revenue thanks to counter-cyclical mechanisms that were in place before the crisis and strengthened in response to the crisis. Cuts to health services were tailored to try and increase provider efficiency in the short run. Over a longer period, however, they could lead to cumulating deficits and, therefore, needed to be supported by a shift in service provision towards prevention, primary care and outpatient settings. Through carefully implemented reforms, the health system was able to lower spending on pharmaceuticals without damaging access, even under crisis conditions.

## THE NATURE AND MAGNITUDE OF THE FINANCIAL AND ECONOMIC CRISIS

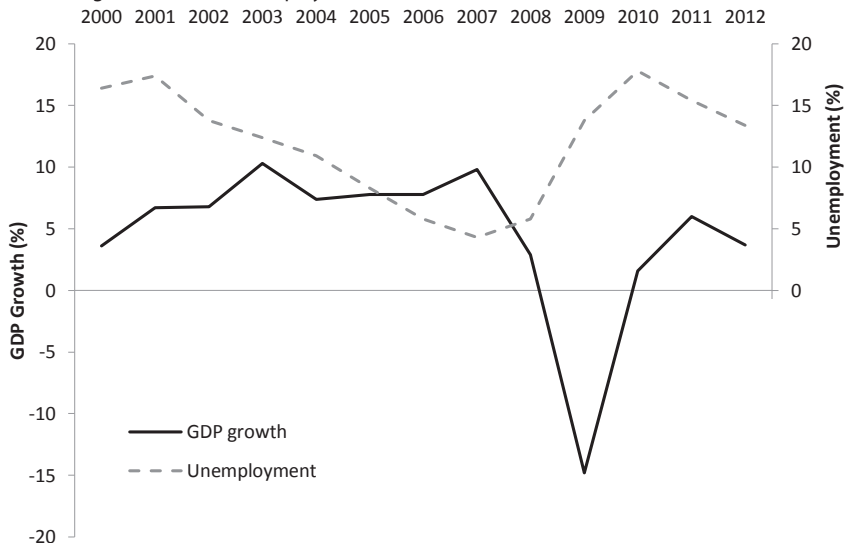
### The origins and immediate effects of the crisis

The financial crisis impacted severely on Lithuania's economy in 2009 when GDP fell by nearly 15% in comparison to the previous year, and unemployment increased from 4.4% in 2007 to 18% in 2010 (Figure 1 and Table 1). One of the major reasons that left Lithuania vulnerable to the economic shock was the expansion of banking sector loans, mostly for real estate, which caused a property bubble that subsequently collapsed. The large growth in banks' loan portfolios during the previous five years was unprecedented: between 2003 and 2008 the annual increase in the total Lithuanian commercial banking system's loan portfolio was, on average, more than 40%. This growth was double that of deposits, and six times greater than the real GDP growth rate[1]. Competition among banks in offering low-interest loans also influenced expectations underlying business and residential investment decisions and fuelled high levels of borrowing as well as intense domestic consumption. As a result, Lithuania found itself with significant deficits in its current and foreign trade accounts, while the growth of wages was much higher compared with labour productivity.

Prior to the onset of the crisis and during the first three years (2005–2007) of Lithuania's membership of the EU, the country received significant financial transfers of about €12.8 billion from external sources: €2.7 billion of EU support (mainly from EU structural funds), €1.8 billion in remittances from emigrants (official records) and €8.2 billion of parent banks' funds (mainly from Scandinavia). These transfers amounted to a substantial cash flow, equivalent to about 15–20% of GDP every year. As mentioned above, most of the domestic banks' loans were directed towards the real estate sector, leading to a real

estate bubble. Meanwhile, during this period of growth the country did not accumulate financial reserves. While, the government deficit met Maastricht criterion until 2007, it started increasing in 2008 and peaked at 9.4% in 2009 (Table 1).

**Figure 1.** Changes in GDP and unemployment in Lithuania, 2000–2012



Source: Eurostat[2]

**Table 1.** Demographic and economic indicators in Lithuania, 2000–2012

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Population level (thousands)	-	-	-	3,462	3,446	3,425	3,403	3,385	3,366	3,350	3,329	3,053	3,008
People aged 65 and over (% of total population)	-	-	-	14.7	15	15.1	15.3	15.6	15.8	16	16.1	17.9	18.1
GDP per capita (€ per inhabitant)	4,100	4,400	4,800	5,300	5,800	6,300	6,900	7,700	8,000	6,900	7,100	7,700	8,100
Real GDP growth (%)	-	-	-	10.3	7.4	7.8	7.8	9.8	2.9	-14.8	1.5	5.9	3.6
Government deficit (% of GDP)	-	-	-1.9	-1.3	-1.5	-0.5	-0.4	-1.0	-3.3	-9.4	-7.2	-5.5	-3.2
Government consolidated gross debt (% of GDP)	-	-	22.2	21.0	19.3	18.3	17.9	16.8	15.5	29.3	37.9	38.5	40.7
Long term interest rates (10 year government rate)	-	-	5.97	5.22	4.43	3.73	4.00	4.58	-	-	-	-	4.54
Unemployment rate (%)	16.3	7.1	13.2	13.0	11.4	8.4	5.7	4.4	5.9	13.9	18.0	15.5	13.3
Long-term unemployment (%)	8.0	9.8	7.4	5.9	5.8	4.2	2.3	1.2	1.1	3.2	7.4	8.0	6.5

Source: Eurostat[2]

According to official statistics, total (declared plus estimated) emigration was between 24 000 and 27 000 people annually in 2006–2008[3]. After the onset of the crisis, it rose to 35,000 in 2009, 83,000 in 2010 and 54,000 in 2011. During this period, over 80% of emigrants were part of the economically active population, with people aged between 20 and 34 constituting, on average, 55% of the total. The unemployment rate increased rapidly from 5.9% (2008) to 13.9% in 2009 and to 18.0% in 2010. With economic recovery and emigration, it decreased to 15.5% in 2011 and 13.3% in 2012.

### **Government responses to the crisis**

In contrast to some other countries that were severely affected by the financial crisis, Lithuania did not apply to the IMF and European Central Bank for financial aid; instead, the strategy of the Government was to cope with the crisis using its own means by implementing strict fiscal policy, cutting public expenditure and borrowing on international markets. The situation was exacerbated by having to rescue one of the country's mid-sized domestic banks at the end of 2011. In addition to using funds accumulated in the bank deposit insurance fund, this required €725 million from the state budget.

During this period of economic contraction, the long-term interest rate in international markets rapidly increased from less than 5% in 2007 to 9% at the end of 2008, peaking at 14.5% in 2009[4]. Later, as GDP returned to growth in 2010 and subsequent years, markets demonstrated increasing confidence in Lithuania's economy, and the interest rate reduced to 5% in 2010 and 2011, and 4% at the end of 2012.

Fiscally, Lithuania was not prepared for an economic downturn. During the years of fast economic growth that preceded the financial crisis, based partly on the disproportional growth of the real estate sector, which was stimulated by cheap loans, the country did not use available opportunities to accumulate financial reserves. Once the crisis deepened, and facing a deep contraction of the economy, the government chose to introduce strict fiscal discipline and public sector retrenchment. The policies introduced included:

- a reduction in public administration expenditure in 2009: through a 13% reduction of public servants' salaries, and an 8% reduction to those of other public sector employees as well as through public sector downsizing, mainly by merging institutions with similar functions; and
- balancing the social insurance budget and reducing social benefits, for example through such measures as a progressive cut in retirement pensions (from 2.1% to 12.3% for full-time pensioners and from 2.5% to 70% for working pensioners) and social benefits for other groups, as well as the gradual extension of the retirement age.

These measures, together with some tax policy changes (see below) and policies directed towards improving the business environment, were included in the National

Agreement (2009) drawn up in response to the crisis and signed by the government and other stakeholders (representatives of trade unions, businesses and employers, and pensioners) in October 2009[5]. Under this Agreement, some of the cuts (e.g. the reduction in retirement pensions) were abolished in 2012.

At the end of 2008, the government (2008–2012), which had just come to power after national elections, initiated a tax reform in an effort to stabilize public finances. The key elements of the reform introduced at the beginning of 2009 were:

- an increase of the rate of VAT rate from 18% to 21%;
- an increase of corporate tax rate from 15% to 20% with some exceptions for small business; the corporate tax rate was restored to 15% in 2010; and
- splitting income tax, which used to incorporate personal income tax and a health insurance contribution amounting to 24% of salary (on average), into two distinct categories of personal income tax (15%) and health insurance contribution (typically 9%) of total income.

The reform of personal income tax was a continuation of previous reforms directed towards the reduction and equalization of labour taxes. Before 2006, the tax rate was 33% for employees and 15% for the self-employed. In 2006, the rate for employees decreased to 27%, and in 2008, to 24%. Finally, as mentioned in 2009, personal income tax was formally separated from health insurance contributions and the rate of personal income tax was set at 15% for all categories of the economically active population.

Changes in the structure of tax revenue during the period 2006–2011 are shown in Table 2. The main shift was in 2010, when the share of revenues from income and corporate tax fell substantially, accounting for 19% of total tax revenues in comparison to almost 30% in 2008. At the same time, the share of support from EU structural funds increased from 13% in 2008 to 23% in 2010 of the national budget.

### **Broader consequences**

Increasing unemployment and loss of income affected household budgets. In 2011, OOP expenditure constituted 27% of total health expenditure. About two-thirds of OOPs were for pharmaceuticals, as patients have to cover the full price of medicine unless they fall into exemption categories (including children, pensioners and people with chronic diseases) for which between 50% and 100% of the price is reimbursed by the state. The Household Expenditure Survey in 2008[8] showed that average household monthly spending on health care was €11, which was about 4% of average household disposable income, with pensioners' households spending on average €23 (10% of disposable income) on health.

**Table 2.** Changes in the structure of tax revenue in Lithuania, 2006–2011

	2006	2007	2008	2009	2010	2011
Taxes on income and profits, %, including:	32.5	29.5	29.8	22.6	19	18.2
Personal income tax	20.8	19.0	18.6	15.6	14.9	14.8
Corporate profit tax	11.7	10.5	11.2	7.0	4.1	3.4
Taxes on property, %	1.4	1.2	1.1	1.3	1.5	1.3
Domestic taxes on goods and services, %, incl.	45.0	45.9	47.7	43.2	46.2	47.8
VAT	31.5	32.5	33.7	28.0	31.3	33.3
Excises	12.2	11.7	12.2	13.4	13.0	12.4
Taxes on international trade and transactions, %	0.9	0.9	0.9	0.7	0.8	0.8
Non-tax revenue, %	7.9	7.1	7.2	7.4	9.2	8.5
Capital revenue, %	1.2	1.0	0.6	0.4	0.5	0.6
EU support, %	11.1	14.5	12.7	24.4	22.9	22.8
Total, EUR million	5,659.8	6,964.7	7,934.4	7,033.2	6,750.9	7,394.6

Source: Statistics Lithuania[6, 7]

## HEALTH SYSTEM PRESSURES PRIOR TO THE CRISIS

In terms of service provision, the health sector was insufficiently prepared to deal with the financial crisis because of its underdeveloped primary care system, excess capacity of the hospital sector and, as a result, overreliance on inpatient care despite the ongoing attempts to expand the reach of primary care and develop alternatives to inpatient services. In addition, total private expenditure, consisting mostly of OOP payments, are high, constituting 28% of total health expenditure in 2011[9], and may lead to growing financial barriers in accessing health services or pharmaceuticals when households' incomes fall.

In Lithuania, primary care has enjoyed organizational autonomy since 1997 and has performed a gatekeeping role since 2002. Around 90% of the population is registered with a GP or a primary care team. Payment for primary health care consists of a capitation component (82%) and a FFS and performance-related component (18%), which is tied to prevention activities and quality indicators (e.g. chronic disease management). However, the role of primary care is still underdeveloped, as many patients only schedule visits to receive a referral to a specialist[10]. This situation is combined with rather slow reform and excess capacity in the hospital sector. Since 2001, supported by financial incentives for hospitals, the range of alternatives to inpatient services has been increasing, including the introduction of day care and day surgery. In the past few years, the average growth of day surgery has been 10% per year, reaching 34% of all surgical

operations<sup>2</sup> in 2011[11]. Despite this, there is still an overreliance on inpatient care and the hospitalization rate is one of the highest in the EU (see Murauskiene et al, 2013[12] for further details on health financing and provision of services). Selected indicators for acute hospitals in Lithuania and the EU over recent years are given in Table 3.

**Table 3.** Acute hospital indicators in Lithuania and the EU, 2006–2011

	2006	2007	2008	2009	2010	2011
Hospital beds per 100,000						
Lithuania	511.5	510.7	505.9	503.4	504.2	509.1
EU average	419.0	410.1	402.8	399.2	393.5	n/a
Hospital discharges per 100						
Lithuania	19.8	19.8	20.0	20.3	20.3	20.5
EU average	15.7	15.6	15.6	15.6	n/a	n/a

Note: n/a: Not available.

Sources: Health Information Centre[9], WHO Regional Office for Europe [13].

Notwithstanding these structural deficiencies, the government's use of a counter-cyclical mechanism, in this case the compulsory health insurance contributions made by the state on behalf of the unemployed and those who are economically inactive, was a major factor which helped to maintain this source of health sector funding despite falling revenues from those employed due to decreasing wages and increasing unemployment. Following existing legislation, the government has been increasing the share of the health insurance contribution per person insured by the state since 2008, and as a result the transfers from the state budget to the National Health Insurance Fund (NHIF), increased substantially during the first years of the crisis. There were reserves amounting to €125 million in the NHIF at the beginning of 2009 (representing 10% of its budget), consisting of savings made from cancelling advance payments (7.5%) and bonuses (2.5%) to providers. This reserve was utilized to soften the impact of the crisis over the course of 2009.

## HEALTH SYSTEM RESPONSES TO THE CRISIS

### Changes to public funding for the health system

*Health budgets.* The NHIF is the single agency responsible for health service purchasing. It manages the compulsory health insurance scheme, accounting for 80 to 85% of public health expenditure. NHIF revenues mainly come from two major sources: health insurance contributions and contributions from the state budget for the economically

2 The definition of day care in Lithuania may include overnight stays.



inactive population and the unemployed as well as additional state budget transfers for some targeted programmes delegated to the NHIF for administration.

Before the crisis, total health expenditure in Lithuania was increasing steadily, and more than doubled between 2004 and 2008 to €2.1 billion. It started to decline in 2009, falling by 6% in comparison to 2008, and by a further 4% in 2010. However, by 2011, total health expenditure had increased almost to the 2008 level (Table 4).

**Table 4.** Health expenditure trends in Lithuania, 2004–2011

	2004	2005	2006	2007	2008	2009	2010	2011(p)
Total health expenditure (THE) (€ million)	1,035.1	1,223.4	1,493.5	1,788.7	2,142.0	2,007.8	1,963.8	2,122.0
Public	699.3	829.0	1,038.1	1,305.4	1,550.7	1,462.1	1,390.5	1,467.4
of which social security funds	610.0	714.3	875.0	1,048.4	1,260.9	1,226.5	1,173.9	1,249.2
Private	335.8	394.1	455.2	483.1	591.2	545.5	538.9	586.8
of which private households OOP	330.6	388.4	447.8	475.0	579.2	531.3	527.1	573.6
THE as % of GDP (%)	5.7%	5.8%	6.2%	6.2%	6.6%	7.5%	7.1%	6.9%
Public expenditure on health as % of total public expenditure (%)	12.5%	14.9%	13.6%	13.3%	13.4%	12.7%	13.3%	14.0%
Public expenditure on health as % of GDP (%)	3.8%	4.0%	4.3%	4.5%	4.8%	5.4%	5.0%	4.8%
Private expenditure on health as a % of THE (%)	32.4%	32.2%	30.5%	27.0%	27.6%	27.2%	27.4%	27.7%
Private expenditure on health as % of GDP (%)	1.8%	1.9%	1.9%	1.7%	1.8%	2.1%	2.0%	1.9%
Public expenditure on health as % of THE	67.6%	67.8%	69.5%	73.0%	72.3%	72.8%	70.8%	69.2%
THE per capita (in €)	301.3	358.3	440.0	529.9	637.9	601.2	597.5	658.6

Notes: (p): Preliminary data; THE: Total health expenditure.

Source: Statistics Lithuania[3]

Despite the economic downturn, the transfers from the state budget to the health sector (including contributions to the compulsory health insurance scheme as part of the NHIF's revenue) increased from €493.5 million in 2008 (100%) to €563.9 million in 2009 (114%), to €664.8 million in 2010 (135%) and €643.2 million in 2011 (131%)[3] due to the counter-cyclical mechanism in place and the increasing share of contributions for the inactive population and the unemployed. In light of the massive cuts in other public sectors, maintaining this increase was definitely a challenge for the Government and for the Ministry of Finance; however, the provisions of the Law on Health Insurance, which stipulate the level of the state budget contribution, were adhered to. Consequently, despite the crisis, the health sector was one of the sectors that received more funding as a proportion of total government expenditure in 2009. Between 2007 and 2009, there

were also expenditure increases in the social sector whereas substantial reductions were implemented in general public services and in the defence budget.

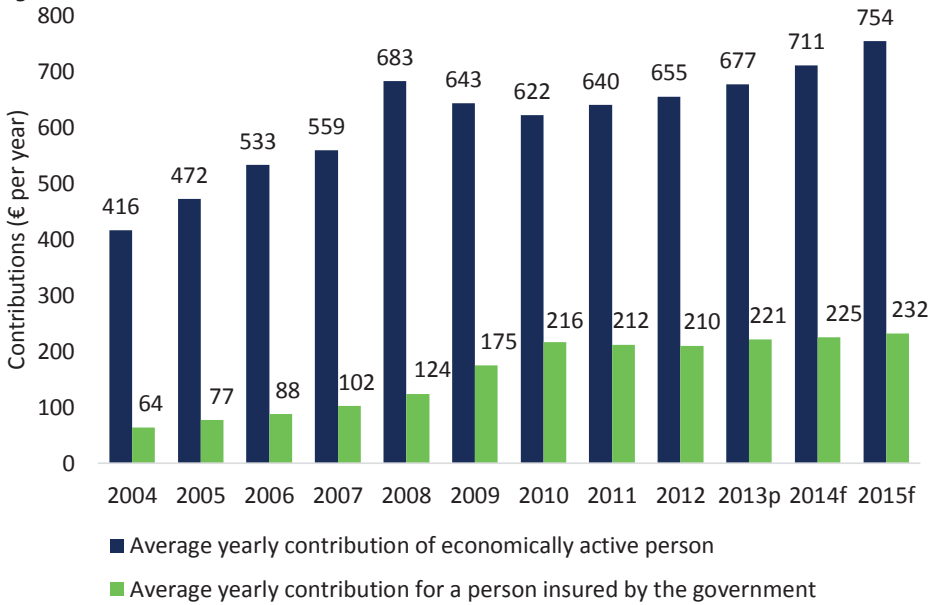
Before the crisis, in absolute terms, private spending on health was growing at a similar rate to public spending, while the share of private expenditure was very gradually decreasing (from 32.4% in 2004 to 27% in 2007). However, already in 2008 there was a rapid increase in private spending in absolute figures and a slight increase in relative terms (Table 4).

External funding increased annually during the crisis, from €10 million in 2007 to €60 million in 2011, as the health system received a total of €225 million from EU structural funds during the period 2007–2013[14].

*SHI revenue.* Under the Law on Health Insurance there are two main sources of SHI revenue: the contributions of the economically active population, which account for approximately 40% of the total population, and the contribution of the state budget on behalf of the economically inactive population (pensioners, children, students, etc.) and the registered unemployed. For 2011, the contributions of the active workforce constituted approximately 60% of health insurance revenue, and the contribution of the state budget for the economically inactive and the unemployed constituted about 40%. The ratio between these two sources has changed over different stages of the economic cycle, depending mainly on the unemployment rate.

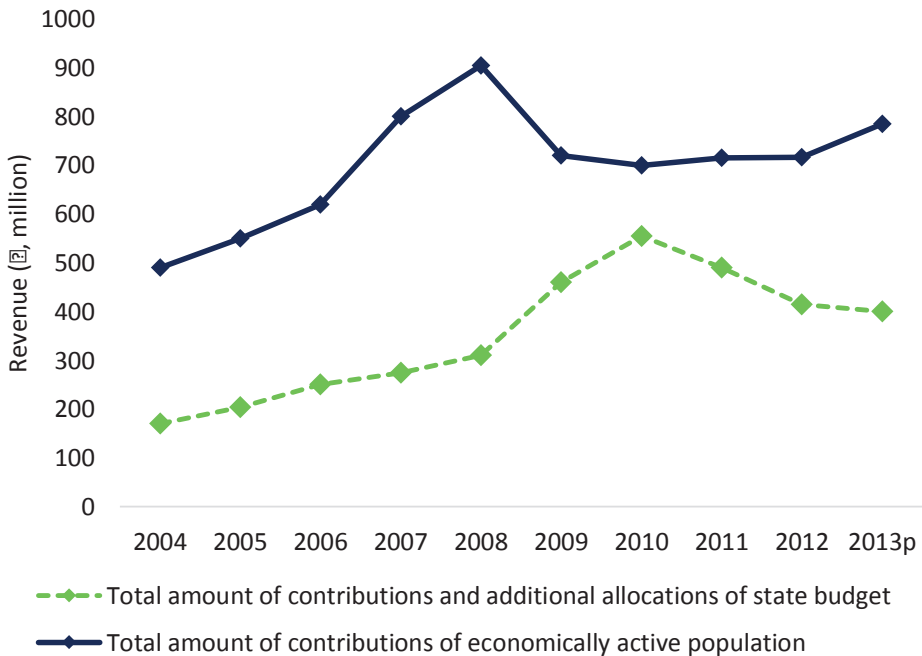
One important aspect, which is also the basis of the counter-cyclical mechanism, is that the state's contribution is tightly and retrospectively bound to that of the economically active population. In 1998, the Law on the Health System stipulated that public spending on health had to be at least 5% of GDP. However, this target was never achieved and eventually the provision was abolished as unconstitutional in 2002. Nevertheless, there was a need to establish a mechanism to ensure a gradual increase of the state budget contribution to health financing in accordance with the development of the general economy as well as to maintain the predictability of this financial flow. As a result, in 2004, the average monthly salary of 2003 was set as the basis for the share of the budget contribution towards SHI for the unemployed and inactive groups for forthcoming years. This was changed in 2007 when the state budget contribution was set as a share of the average gross monthly salary, lagged by two years, and this share has increased over time (Table 5). The effect of this measure on the health insurance fund's revenue is shown in Figures 2 and 3.

**Figure 2.** Contributions to SHI in Lithuania, 2004–2015



Notes: p: Preliminary data; f: Forecast.  
Source: NHIF[11]

**Figure 3.** Functioning of the counter-cyclical mechanism of SHI revenue in Lithuania, 2004–2013



Source: NHIF[11]

**Table 5.** Share of the state budget contribution for people insured by the government as a percentage of the official (2-year lagged) average salary in Lithuania

	2007	2008	2009	2010	2011	2012	2013	2014	2015
State budget contribution per person (%)	26	27	32	33	34	35	36	37	37

Source: Parliament of the Republic of Lithuania, Health Insurance Law[15]

In addition, the tax reform adopted at the end of 2008 set clear rules for compulsory health insurance contributions. The original rate of personal income tax (24% of gross salary in 2008) contained compulsory health insurance contributions (30% of the personal income tax). This was separated into a distinct tax on income (15%) and a health insurance contribution (9% in most cases). The result of the reform was that there were almost no unjustified exceptions left to SHI obligations and the collecting agents (mainly the Social Insurance Fund and the State Tax Office for some groups) substantially increased their effectiveness in enforcing payment of contributions through the implementation of government policy against the shadow economy and tax avoidance.

However, as can be seen in Figure 3, due to increasing unemployment and decreasing wages the amount of money collected for SHI from the economically active population declined by 20% in 2009, and by 23.3% in 2010 in comparison to 2008. In 2011, it started to recover slightly, and this trend continued in 2012. In contrast, the amount of state budget contributions for people insured through the state budget rapidly increased and more than doubled between 2007 (€263 million) and 2010 (€554 million). According to legislation, the expenditure of the SHI fund has to be balanced with its revenues. The fund can accumulate reserves not exceeding 10% of revenue in a given year. The reserve is built up using previous years' surplus revenue and should be used to cover temporary deficits in revenue or for covering unpredictable expenditures.

### Changes to coverage

*Population entitlement.* There were no essential changes in population entitlement to health care. SHI coverage has expanded slightly since 2009 through the implementation of clearer and more transparent rules for health insurance contributions as well as better collection. At the beginning of 2012, 91% of the population was covered by health insurance. The remaining 9% of the population (e.g. people who did not declare that they had left the country, those in the shadow economy, the homeless) was entitled to urgent care, which involved acute conditions that may result in serious complications, disability or death.

*The benefits package.* Lithuania has quite a broad benefits package. There were no changes to service coverage and scope of services as a result of the financial crisis, with the exception of a reduction in temporary sick leave benefits, administered by the Social Insurance Agency. Before the crisis, sick leave benefit amounted to 85% of salary, while

since 2009 those on a sick leave receive 40% of salary between the third and seventh day of their illness, and 80% of their salary subsequently.

*User charges.* As shown in Table 4, historically, private expenditure makes up approximately 30% of total expenditure on health. Virtually all of private expenditure consists of households' OOP payments. The share of private expenditure on health increased slightly during the crisis, from 27% in 2007 to 27.7% in 2011. While the bulk of OOP (about two-thirds) is attributed to payments for pharmaceuticals, private pharmaceutical expenditure decreased during this period[16] This means that providers charged patients more often or with larger amounts for diagnostic tests and treatment. The extent of these charges is difficult to estimate, as some of them are not clearly defined and regulated, and de facto they exist as quasi-formal direct payments[12]. The increase in these charges, as well as in informal payments, has been reflected in a series of population surveys conducted by the NHIF[17], which indicated that between 2009 and 2011, OOP payments increased among survey respondents by 23% for diagnostic tests and by 9% for treatment.

*The role of VHI.* The introduction of VHI, planned to cover a substantial part of the population, was included in the government's programme between 2008 and 2012. The main rationale for this introduction was the belief that it had the potential to generate substantial additional funding for health care. However, a feasibility study commissioned by the Ministry of Health in 2010 highlighted the population's apparently negative attitude towards the idea of introducing VHI[18] and, therefore, this initiative was not implemented.

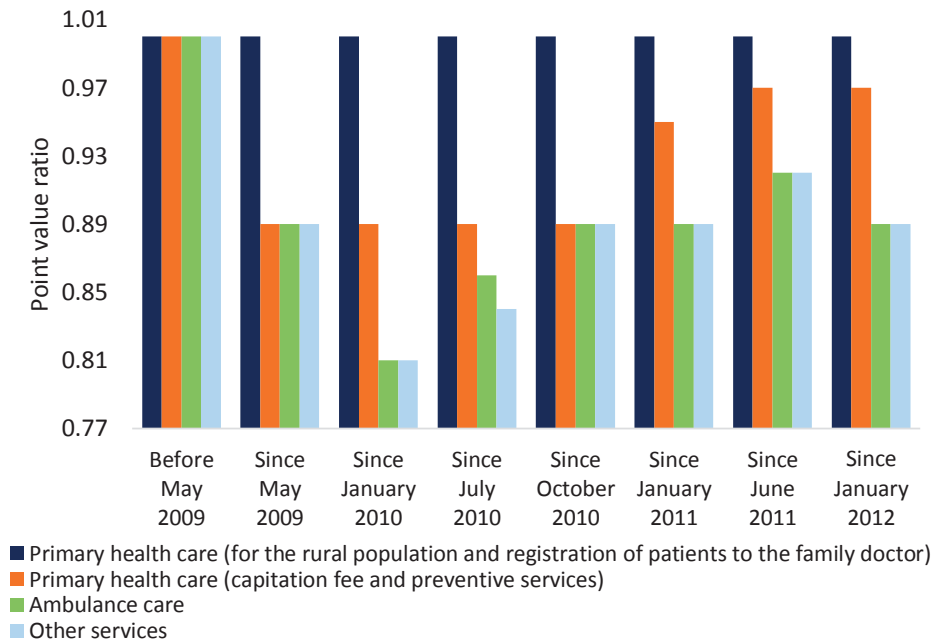
### **Changes to health service planning, purchasing and delivery**

*Reducing health service tariffs.* An important measure introduced as a response to the crisis was a reduction in the prices of health care services paid to providers by the NHIF. These cuts were made in several rounds, using a mechanism of decreasing point values.

The first round of cuts was made in May 2009, when all prices of health care services were reduced by 11%, with the exception of the bonus payment per capita for the registered rural population and new registrations of patients with a family doctor (versus being registered with a primary health care team), which remained intact throughout the crisis. The next round, in January 2010, involved a further reduction of 8% (reduction of 19% in total) for most services, including ambulance service and specialist inpatient and outpatient care. Only capitation payments and payments for preventive services (accounting for more than 80% of financing for primary care) stayed at the previous level. From July 2010 the lowest point value was gradually restored and remained at 89% until January 2012. There were also three retroactive attempts to partially compensate providers for significant cuts using the reserves. As a result, during the crisis and post-crisis period, prices were never reduced by more than 11% for most services; moreover,

primary care had funding priority and experienced less drastic cuts compared with providers of other health services (Figure 4).

**Figure 4.** Point value ratios for health care prices in Lithuania, 2009–2012



Source: NHIF[11]

With existing reserves and room to increase efficiency, overall, providers maintained a positive balance in 2009 and 2010. However, by 2011 their reserves were depleted and there was an increasing number of hospitals declaring negative financial results in 2011 and 2012[11].

*Planned provider-payment reforms.* A long-term strategy of shifting care from inpatient to outpatient, ambulatory and day-care settings started in 2003 and continued during the crisis. The rationale behind this was to reduce existing high rates of inpatient admissions and increase the use of less resource-intensive services (outpatient visits, day care, day surgery and short-term hospitalizations). Thus, the hospital payment mechanism is aimed to incentivize hospitals to provide more of these types of service.

Another important provider-payment reform that was not related to the crisis was the replacement of local case-based payments (in use since 1997) by DRGs (AR-DRGs version 6.0) for payment of acute inpatient care from 2012, after a preparation period in 2009–2011. As a change management measure, the strategy to freeze hospital budgets at the level of 2011 was applied for 2012 and 2013 and did not immediately affect the volumes and prices of services. However, implementation of DRGs triggered a shift in

health services costing. By the end of 2012, a feasibility study was completed to identify alternatives in costing methodology. It is most likely that the pilot project using the selected methodology will take place in 2013–2016 with the aim of compiling comprehensive, detailed and reliable data for the calculation of DRG prices, and benchmarks for the management of the hospital sector at the macro-level, and the management of hospitals at the meso- and micro-levels.

*Service restructuring.* In 2009, a hospital restructuring master plan was introduced, as part of the broader service reconfiguration strategy being implemented since 2003. The plan consisted of:

- stratification of the hospital network into municipal, regional and national levels;
- the merger of hospitals into larger legal entities, particularly incorporating mono-profile specialized hospitals into multi-profile ones; and
- implementing elements of selective contracting by terminating contracting of surgery, obstetrics and intensive care services with small municipal hospitals that had not met the criteria of a minimal number of major procedures and deliveries.

The plan was implemented until 2012. As a result, some hospitals merged between 2009 and 2012, joining mono-profile hospitals with larger multi-profile institutions and thus reducing the number of legal entities by 25% (from 81 to 61), and some municipal hospitals ceased to provide surgery (eight) and obstetric (three) services. In order to maintain accessibility to a limited scope of services in these hospitals, additional funding was used to assure 24/7 access to a surgeon at an accident and emergency department, who could provide urgent care, conduct minor procedures and refer patients to a larger hospital. In addition, the providers of ambulance care and transfers received some funding to cover the higher number of patients transported to larger hospitals.

*Capital investment.* During the crisis, the governmental investment in health care projects decreased from €66 million in 2008 to €17 million in 2009, and €14 million in 2010[14]. As the state share of investment dropped sharply, the funding from EU structural funds became the major source of capital investment.

*Reductions in health sector salaries and changes to working conditions.* The main costs of health care provision are related to the salaries of medical personnel, which account for 50–70% of expenditure in hospitals and 70–80% in outpatient care. Historically, health care sector salaries in Lithuania have been low in comparison with other EU Member States; consequently, a strategy to increase the salaries of medical personnel was implemented between 2005 and 2008, increasing the average monthly salary of health workers from €285 in 2005 to €635 in 2008 and €683 in 2009. However, reductions in the prices of health care services impacted mainly on salaries, which decreased on average by 13% for both doctors and nurses in 2010 and then started to recover gradually. In

2011, the level of salaries was almost back to that of 2009 (€661), and in 2012 exceeded this level (€710)[11].

*Pharmaceutical policy reforms.* Lithuania belongs to the group of countries (such as the Czech Republic, Poland, Austria, Belgium and Spain) with relatively high consumption rates for pharmaceuticals (with expenditure accounting for 1.7% to 1.9% of GDP and 15% of public health care spending). Public funding covers approximately 35% of total pharmaceutical expenditure. The share of generics accounts for 50% of packages (and 18% of expenditure)[19].

In response to the financial crisis, the Plan for Improving Pharmaceutical Accessibility and Reducing Prices (the “Drug Plan”) was approved in July 2009 and implemented in 2009–2010[20]. The Drug Plan consisted of a set of 28 measures addressed at producers, wholesalers, pharmacists, physicians and patients. The most effective measures of the Drug Plan were the expansion of the list of reference countries for setting reference prices; new requirements for generic pricing and the introduction of cost and volume agreements with producers. A new version of the catalogue of pharmaceuticals reimbursed by the NHIF (positive list) was introduced, and reference prices were set according to the average of eight EU Member States (Bulgaria, Czech Republic, Estonia, Hungary, Latvia, Poland, Romania and Slovakia) minus 5%. The effect of this measure was a substantial decrease in the prices of originators. From 2010, there were also new requirements for generic pricing in order to be reimbursed; for example, the first generic had to be priced 30% below the originator, while the second and third generics must be priced at least 10% less than the first generic. In addition, a reserve list of pharmaceuticals, to be introduced into the catalogue, was established. Moreover, pharmaceuticals started to be prescribed according to the active substance (INN) of the product, while patients were given the possibility to choose the medicine with the smallest co-payment.

The implementation of the plan resulted in a reduction in the reference prices of more than 1000 medicines, and pharmaceutical expenditures by both the NHIF and patient co-payments decreased substantially[16]. It is estimated that in comparison to 2009, €15 million in personal expenditure was saved in 2010, and €19 million in 2011, while the number of prescriptions increased[11], indicating an improvement in access to pharmaceuticals since the introduction of the Drug Plan.

NHIF expenditure on pharmaceuticals and medical devices in the ambulatory care sector decreased from €197.9 million in 2008 to €189.2 million in 2010. These savings created opportunities for the reimbursement of new innovative medicines. In 2011 reimbursement was applied to new drugs for the treatment of lung, breast, stomach and colon cancer as well as for ischaemic heart disease, mental and behavioural disorders, and some other diseases[11].<sup>3</sup>

<sup>3</sup> Some of these new pharmaceuticals include Gefitinibum, Anagrelidum, Pegfilgrastinum, Capecitabinum, Agomelatium, Fulvestrantum, Palonosetronum and Ivabradinum.



*Prevention, health promotion and public health.* The impact on preventive services provided in primary care varied according to the programme. Some services continued to have funding priorities: funding for prevention of cardiovascular diseases steadily increased annually from €0.28 million in 2006 to €2.76 million in 2011; the new programme for colon cancer screening began in 2009 (€0.38 million) and continued in 2010 (€0.92 million) and 2011 (€0.71 million). At the same time, funding for breast, cervical and prostate cancer screening programmes declined in 2009 and 2010 and partially recovered in 2011[21].

With the exception of the priority services discussed above, the funding for public health was not protected from budget cuts. Before the crisis, the public health budget (both national and municipal) grew from €19.6 million in 2006 to €29.5 million in 2008. Since 2009, there have been substantial cuts: to €22.4 million in 2009 and €18.9 million in 2010 (a 36% reduction compared with 2008) but with a minor recovery to €20.4 million in 2011[14]. According to legislative changes introduced in 2007, public health bureaus, responsible mainly for health promotion, health status monitoring and child health, were established in municipalities. At the state level, following parliamentary decisions in 2011 and 2008–2012 and the government's policy to reduce bureaucracy and related costs, the State Public Health Service was abolished in 2012. Instead, the network of 10 regional public health centres, which are mainly responsible for public health safety and prevention and control of communicable diseases, are now directly supervised by the Ministry of Health.

## IMPLICATIONS FOR HEALTH SYSTEM PERFORMANCE AND HEALTH

### Equity in financing and financial protection

Changes during the crisis period increased equity in financing health care in terms of revenue collection. The tax reform at the end of 2008 had a positive impact both on vertical and horizontal equity. For example, some self-employed population groups such as artists, sportsmen and other freelancers started to pay contributions on a regular basis according to their income. In addition, the number of population groups paying fixed flat-rate contributions was reduced, and contributions became income based.

### Access to services

Health care utilization indicators show that there were no evident changes in access to health care except for a slight temporal decrease of outpatient visits in 2009 and 2010, which then increased in 2011, exceeding the pre-crisis level (Table 6). However, the increase in OOP expenditure and data from patient surveys[17] indicate the presence of

**Table 6.** Health service utilization per inhabitant in Lithuania, 2006–2011

	2006	2007	2008	2009	2010	2011*
Visits to GPs	4.4	4.6	4.7	4.6	4.5	4.7
Outpatient visits per person	6.6	6.9	7.0	6.9	6.9	7.2
Inpatient admissions per 100, total	21.6	21.6	21.8	22.2	22.2	22.7
Inpatient admissions per 100, acute	19.8	19.8	20.0	20.5	20.4	20.7
Day cases per 100, total	0.9	1.3	1.5	1.6	1.9	2.2

Note: \*The increase across all indicators indicates a substantial change in the denominator (total population) as a result of more accurate recording of migration data and the availability of 2011 census data; corrections in population estimates for preceding years have not yet been published.

Source: Health Information Centre[9].

additional financial barriers to access to care. There is no comprehensive data on waiting lists.

According to EU-SILC survey data on self-reported unmet medical need, Lithuania's average unadjusted rate improved from 10.1% in 2005 to 3.6% in 2009; after that, unmet need increased to 4.4% in 2011 mainly for financial reasons and because patients chose to delay treatment[2].

### Impact on efficiency

Certain measures, mostly pre-dating the crisis, continued to address inefficiencies within the health system. First, established priorities, such as strengthening primary care, treating patients outside inpatient settings and prevention, were maintained. Second, in line with reform of the hospital network, some services (surgery, obstetrics) were moved from local to larger hospitals.

To some extent, the measures taken during the crisis enabled the health system to manage with less. The most successful example is the implementation of the Drug Plan, which reduced pharmaceutical expenditure and improved patients' access to pharmaceuticals. In addition, reductions in the prices of health care services forced providers to maintain provision of services with lower levels of funding.

There is no comprehensive information related to changes in the quality of care. However, the maintenance of service provision levels by providers facing reduced budgets presumably resulted in cuts to the salaries of medical personnel, which could potentially have had a negative impact on quality of care.

### Quality of care

According to the population survey conducted by the NHIF[17], waiting times and large co-payments were named as the main barriers to accessing health care. Between 2009 and 2011, the share of respondents indicating that they had experienced difficulties in accessing care with regard to visits to a specialist increased from 38% to 58%, for

diagnostic tests from 27% to 40%, and for elective surgery from 11% to 19%. According to the same survey, the share of respondents assessing quality of care as low increased from 13% in 2009 to 28% in 2011. However, this was a general judgement not based on any specific aspect of quality.

### Transparency and accountability

The tax reform of 2008 brought positive changes to transparency and accountability to tax payers. The separation of the SHI contribution into a separate component and improved collection served as a signal to tax payers, quantifying their input into the public financing of health care as well as emphasizing their duty to make the required contribution. Moreover, under strict fiscal discipline, general transparency and accountability in public finances has improved. For example, the Ministry of Finance initiated the implementation of a system for national budget monitoring while the Cabinet and the Ministry of Finance have tightened the terms of use of the compulsory health insurance fund's reserve.

### Impact on health

While the financial crisis has not had an obvious impact on the overall health status of the population in Lithuania, falling incomes and rapid growth in unemployment (peaking at 17.8% in 2010) theoretically increases the number of people at risk of suicides, mental health problems or not being able to access health services. The available evidence on changes to health mainly relates to an increase in suicides, depression and HIV infections, and a decrease in road traffic accidents and alcohol-related morbidity and mortality (Tables 7 and 8).

**Table 7.** Selected health indicators in Lithuania, 2002–2011

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Depression (incidence per 100,000)	69.5	65.6	64.1	54.7	52.0	45.2	48.0	53.6	64.3	n/a
Addiction disorders (incidence per 100,000)	79.8	72.9	76.6	95.3	89.4	101.2	93.0	72.7	67.6	74.8
Suicides (DSR per 100,000)	44.7	42.1	40.2	38.6	30.9	30.4	33.1	34.1	31.0	31.6
Alcohol-related deaths (DSR per 100,000)	29.0	32.2	32.0	36.4	43.7	51.6	43.9	30.5	29.3	29.3
Transport accidents (DSR per 100,000)	23.9	24.7	25.1	25.9	26.5	26.0	17.9	13.7	11.3	11.2

Note: n/a: Data not available; SDR: standardized death rate.

Sources: Health Information Centre[9]; State Mental Health Centre[26]

**Table 8.** HIV incidence (absolute numbers) according to transmission mode in Lithuania, 2006–2011

	2006	2007	2008	2009	2010	2011
Heterosexual	15	27	26	34	26	31
MSM	8	4	9	9	5	7
Injecting drug users	62	59	42	117	106	86
Unknown	15	15	18	20	16	41
Perinatal	0	1	0	0	0	1
Total	100	106	95	180	153	166

Source: Centre for Communicable Diseases and AIDS[27]

Historically, Lithuania has the highest recorded rate of suicides in the WHO European Region; however, a steady decline in deaths from suicides and self-inflicted injuries was seen during a number of years prior to the crisis, leading to the rate of 28.4 per 100,000 in 2007. This trend reversed in 2008 and 2009, amounting to an increase in the suicide rate to 31.5 per 100,000, and slightly decreasing since.

In mental health, depression increased during 2008–2010, reversing the previous falling trend. Similar results (on self-reported depression) have been reported in the population health survey, particularly in women (from 17% in 2008 to 25% in 2010), but also in men (from 25% in 2008 to 27% in 2010) [22]. Addiction disorders decreased, driven primarily by a reduction in mental health disorders caused by alcohol abuse, in line with other alcohol-related trends (see below). This was due to anti-alcohol policies introduced in 2007 and 2008, irrespectively of the crisis.

The introduction of anti-alcohol policies, prompted by rising alcohol consumption and worsening of alcohol-related health outcomes in the years leading to the crisis, had a positive impact in reducing alcohol-related mortality. In addition, road traffic deaths halved as a result of a combination of factors, including enforcement of road traffic safety[23], anti-alcohol measures[24] and the effects of the financial crisis[25]. Initially very noticeable, these changes seemed to slow down in 2011 but are still at levels that are higher than the EU average, indicating that the initial impetus has worn off.

According to data from the Lithuanian Centre for Communicable Diseases and AIDS, there was a substantial increase in HIV incidence in the period 2009–2011 in comparison with previous years [27], see also Table 8. Since 2004, HIV incidence had been gradually falling from 3.9 per 100 000 population in 2004 to 2.8 in 2008; however, it nearly doubled to 5.4 in 2009, 4.7 in 2010 and 5.2 in 2011[9]. The increase in absolute numbers was mainly seen among injecting drug users, which has been the main mode of HIV transmission in Lithuania (Table 8). Between 2006 and 2010, there was a reduction in funding available for needle exchange programmes, with distribution amounting to an estimated 45 syringes per user per year[28].

The results from an adult population health survey[22] showed that, overall, the proportion of respondents assessing their health as good remained relatively stable between 2008 and 2010, at 53% for men and 52% for women, with longer-term trends indicating an improvement since 2004. There were some positive trends towards healthier lifestyles in 2010. For men, daily smoking decreased from 39% in 2008 to 34% in 2010, while it increased slightly from 14% to 15% for women during the same period. The proportion of respondents drinking strong alcohol decreased in both sexes between 2008 and 2010, from 29% to 24% in males and from 12% to 9% in females. These trends are mirrored in national statistics, as cigarette sales fell by 33% in 2009 and by 39% in 2010 compared with 2008 sales. However, these figures have to be treated carefully because of the possible increase in illegal tobacco sales. Alcohol consumption showed similar trends. However, the improvements in both indicators were short term, particularly in the case of alcohol, as in 2011 consumption bounced back to exceed pre-crisis levels (Table 9).

The medium- and long-term impact of the financial crisis on health is still unclear. However, evidence from previous recessions shows that sharp rises in unemployment and loss of income have long-term effects on health, particularly that of the most vulnerable.

**Table 9.** Smoking and alcohol consumption indicators in those aged 15+ in Lithuania, 2007–2011

	2007	2008	2009	2010	2011
Smoking, cigarettes per inhabitant (15+ population) per year	1,457	1,421	947	863	987
Alcohol (100%) consumption, litres per inhabitant, (15+) population) per year	13.4	13.3	12.4	12.9	14.1

Source: Health Information Centre[9]

## DISCUSSION

### Drivers of change

The most important factors driving crisis-related changes in Lithuania were agents external to the health system – the parliament, the government and the Ministry of Finance. The new conservative-led coalition government that came to power in December 2008 had to take urgent measures to reduce public spending in order to cope with the crisis that had started to unfold. The government and the Ministry of Finance involved representatives of the Ministry of Health and the NHIF in discussions and the preparation of draft legislative amendments in response to the crisis.

The crisis was regarded both as a challenge (bearing in mind the depth of the economic downturn) and as an opportunity to implement unpopular but necessary reforms.

An example of such reforms was the restructuring of the hospital network with some reconfiguration of hospital services. However, the measures taken to rationalize hospital care were not sufficient[29] and showed modest results. Therefore, it could be argued that this opportunity was not used to its full extent. However, it should be recognized that the government at the time was working under huge time pressure, reacting to the consequences of the quickly deteriorating economic situation, and may not have had enough time to prepare and implement more comprehensive strategies.

### **Content and process of change**

In May 2009, the World Bank presented the Social Sector Public Expenditure Review on Lithuania. On the basis of this review and its own analysis, the Ministry of Health prepared a strategy for the period 2009–2012. The main elements of this strategy were to strengthen primary care further; greater expansion of day care; reform of the hospital network, with a reconfiguration of services; and changes to pharmaceutical policy. To various extents, these measures were implemented by 2011 and 2012.

Prioritization of primary care, outpatient care and day care were, in fact, the continuation of pre-crisis policies and, therefore, were easy to pursue. Moreover, since the cuts in health care prices were differentiated, these services (primary care, outpatient care, day care and preventive services) saw less of a price reduction compared with other services. The funding for some public health prevention programmes financed through the NHIF (cancer and cardiovascular screening) also increased. At the same time, the state-funded public health budget was not protected by any counter-cyclical mechanism and so experienced substantial cuts.

The most difficult policies to implement were hospital reform (because of strong resistance from providers) and the Drug Plan (because of its complexity, with 28 measures). From the middle of 2009, substantial cuts in health services prices were introduced, and this measure quickly affected providers by forcing them to maintain services at lower cost, resulting in significant reductions in the salaries of medical personnel. To a certain extent, this helped the Ministry of Health to prepare and introduce more complex and difficult measures, such as the restructuring of the hospital network. The hospital restructuring and reconfiguration plan was partially fulfilled: mergers resulted in a decrease of 25% in the number of acute care providers (as legal entities), joining most of the mono-profile hospitals with larger multi-profile institutions. However, the overcapacity in inpatient care still remained, together with a high hospitalization rate.

Among the changes that were discussed but not implemented were the introduction of formal user charges and VHI. However both were dropped because of negative reactions from the population.

Some intersectoral action, coinciding with the crisis and involving improvements in road safety and alcohol control measures, resulted in a substantial reduction of road traffic deaths in 2008–2010.

### **Implementation challenges**

Overall, there was quite strong motivation and political will to implement reforms at the central political level (parliament, government, Ministry of Health, Ministry of Finance). However, for hospital restructuring, there was resistance from municipal governments, which, as hospital owners, tried to protect local hospitals from the centralization of inpatient care. Therefore, not all planned restructuring was implemented, although this was not directly a result of the crisis. There was also resistance from health professionals anxious about the reductions in the prices of services, as they resulted in a decrease in salaries. However, these measures were pushed through mainly on the strength of the government's prevailing opinion that priority should be given to the health system's financial sustainability as a basis for future recovery.

### **Resilience in response to the crisis**

Fiscally, Lithuania was not prepared for an economic downturn. During the years of fast economic growth (2004–2007), based partly on a real estate bubble, the country did not use all the available opportunities to collect financial reserves. As the economy rapidly contracted, the government introduced strict fiscal discipline and cuts to public sector spending. The health sector's preparedness was also insufficient because of existing inefficiencies and steady growth in input costs. However, in 2008, the reserve of the compulsory health insurance fund, which is responsible for over 85% of public expenditure on health, accounted for 7.5% of the total fund's budget. This reserve was utilized to soften the impact of the crisis at the beginning of 2009 but the reserve could not cover the simultaneous significant decrease in revenue. The two-year, counter-cyclical mechanism underlying SHI revenue collection on behalf of the state and the increasing size of the state contribution as a proportion of official salaries meant that the level of state budget transfers for people insured by the state rapidly increased in the first two years of the crisis. These measures softened the impact of reductions in health insurance revenues and enabled the government to avoid extreme cuts in health spending.

The Lithuanian health care system has learnt a number of lessons from going through the crisis. First, cuts to services, even if tailored to increase the efficiency of providers in the short term, lead to cumulating deficits in the long term and, therefore, should be supported by structural changes related to shifts in responsibilities and resources from inpatient to outpatient care settings, and from specialized to primary care. Second, the success of the Drug Plan indicates that complex measures involving multiple stakeholders that are consistently implemented can decrease expenditure and increase

accessibility of pharmaceuticals. Third, a health care financing model based on a mix of contributions (SHI contributions from the economically active population and transfers from the budget for those insured by the state) in combination with a counter-cyclical mechanism proved its capacity to counteract falling revenues and to ensure that the share of public spending on health remained intact during the crisis.

Because of the time lags involved, it is still too early to assess the medium- to long-term impact of the crisis on the health system and population health in Lithuania.

## CONCLUSIONS

Lithuania's health care system experienced substantial financial pressure under the large contraction of the country's economy in 2009 (GDP fell by almost 15%). The health system was not properly prepared for the crisis because of the existing inefficiencies in the inpatient sector and primary health being limited in its role in providing appropriate curative and preventive services in the community. At the same time, Lithuania's health financing model based on a single purchaser, a mix of SHI revenue sources, and a counter-cyclical mechanism, proved its vitality as public financing for health care was affected much less than the economy in general.

The main policy during the crisis period was to maintain access to the health benefits package provided by the publicly funded health care system. In order to do this, providers were forced to increase efficiency through reductions in the prices of services covered by the NHIF, restructuring of the hospital network and introducing incentives to treat more patients in primary care and outpatient settings. As a result, there were no changes in health coverage during the crisis. The main drawbacks of the reform measures undertaken during the crisis period were the reduction to health care workers' salaries and hospitals growing financial deficits. While service utilization data showed no major changes, it is difficult to interpret these data because of changes in population numbers. However, population surveys and the increase in OOP payments indicate that some reductions in access to care have been experienced.

As demonstrated by the Drug Plan, well-designed and properly implemented complex measures can decrease expenditure without impairing accessibility (of medicines) even in conditions of crisis.

The crisis seems to have had a short-term impact on the population's mental health, reflected in the increases in depression, addiction disorders and suicides rates. In addition, there has been an increase in HIV incidence among injecting drug users. At the same time, there has been a decrease in road traffic accidents and alcohol-related morbidity and mortality, as well as temporal reductions in the consumption of tobacco and alcohol. The medium- and long-term impact of the financial and economic crisis on



health is still unclear; however, evidence from previous recessions shows that sharp rises in unemployment and loss of income affect the health of the most vulnerable groups well into the future.

## REFERENCES

1. Jakeliunas, S., Lietuvos krizės anatomija (Anatomy of Lithuania's crisis ). 2010, Kaunas: Kitos knygos.
2. Eurostat. Statistics database. 2013 Available from: [http://epp.eurostat.ec.europa.eu/portal/page/portal/statistics/search\\_database](http://epp.eurostat.ec.europa.eu/portal/page/portal/statistics/search_database) (accessed 05/07/2013).
3. Statistics Lithuania. Database of indicators. 2013; Available from: <http://www.stat.gov.lt/> (accessed 05/07/2013).
4. ECB. Statistical data warehouse. 2013; Available from: <http://www.ecb.int/stats/money/long/html/index.en.html> (accessed 05/07/2013).
5. Government of the Republic of Lithuania and Social Partners, National Agreement. 2009.
6. Statistics Lithuania, Statistical yearbook of Lithuania 2010. 2010: Vilnius.
7. Statistics Lithuania, Statistical yearbook of Lithuania 2012. 2012: Vilnius.
8. Statistics Lithuania, Household budgets. 2009: Vilnius.
9. HIC. Statistical database. 2013 18/03/2013; Available from: <http://sic.hi.lt/> (accessed 18/03/2013).
10. van Ginneken, E., J. Habicht, L. Murauskiene, D. Behmane and P. Mladovsky, The Baltic states: building on 20 years of health reforms. *BMJ*, 2012. 345: p. e7348.
11. NHIF, Internal data. 2013.
12. Murauskiene, L., R. Janoniene, M. Veniute, E. van Ginneken and M. Karanikolos, Lithuania: health system review. *Health Systems in Transition*, 2013. 15(2): p. 1-150.
13. WHO EURO. Health for All Database (updated January 2013). 2013; Available from: <http://www.euro.who.int/en/what-we-do/data-and-evidence/databases/european-health-for-all-database-hfa-db2> (accessed 18/03/2013).
14. Ministry of Health, Unpublished internal information. 2013.
15. Parliament of the Republic of Lithuania, Health Insurance Law No. I-1343. 1996 (new edition 2003): Vilnius.
16. Garuoliene, K., T. Alonderis and M. Marcinkevičius, Pharmaceutical policy and the effects of the economic crisis: Lithuania. *Eurohealth*, 2011. 17(1): p. 1-4.
17. NHIF, LIETUVOS GYVENTOJŲ NUOMONĖ APIE PRIVALOMOJO SVEIKATOS DRAUDIMO SISTEMĄ, LIGONIŲ KASŲ IR SVEIKATOS PRIEŽIŪROS ĮSTAIGŲ VEIKLĄ 2009, 2010, 2011 m. (Opinion of Lithuanian residents about the compulsory health insurance system, the National Health Insurance Fund and health care institutions in 2009, 2010 and 2011) 2012: Vilnius.
18. Buivydas, R., G. Cerniauskas, M. Schneider and D. Zeleckiene, Papildomo savanoriškojo sveikatos draudimo analizė (Supplementary voluntary health insurance analysis). 2010, Health Economics Centre: Vilnius.
19. Ministry of Health, Analizė, kaip panaudotos vaistams ir medicinos pagalbos priemonių kompensavimui skiriamos PSDF biudžeto lėšos (Analysis on the use of financing from the Compulsory Health Insurance Fund for reimbursement of medicines and medical devices 2012, Ministry of Health: Vilnius.
20. Ministry of Health, A Plan for Improvement of Drugs Accessibility and Price Reduction (Vaistų prieinamumo gerinimo ir jų kainų mažinimo priemonių planas). 2009.
21. NHIF. Prevention services. 2012; Available from: <http://www.vlk.lt/resources/files/2012/preven-cija/BendraPrev.pdf> (accessed 05/07/2013).
22. Grabauskas, V., J. Klumbiene, J. Petkeviciene, E. Sakyte, V. Kriaucioniene and A. Veryga, Health behaviour among Lithuanian adult population, 2010. 2011, Lithuanian University of Health Sciences Academy of Medicine, Lithuania: Kaunas.

23. MTVC, Sveikatos sektoriaus prioritetų 2014–2020 m. Europos Sąjungos struktūrinės paramos panaudojimo laikotarpiu strateginis vertinimas (Strategic evaluation of health sector priorities for EU structural support use in 2014-2020) 2013, Training, Research and Development Centre (MTVC) and the Ministry of Health: Vilnius.
24. Veryga, A., 2008-Lithuania's year of sobriety: alcohol control becomes a priority of health policy. *Addiction*, 2009. 104(7): p. 1259.
25. Stuckler, D., S. Basu, M. Suhrcke, A. Coutts and M. McKee, Effects of the 2008 recession on health: a first look at European data. *Lancet*, 2011. 378(9786): p. 124-5.
26. State Mental Health Centre. Mental health statistics. 2013; Available from: [http://www.vpsc.lt/index.php?option=com\\_content&view=category&id=12&Itemid=23&lang=en](http://www.vpsc.lt/index.php?option=com_content&view=category&id=12&Itemid=23&lang=en) (accessed 18/03/2013).
27. ULAC. Statistics/reports on sexually transmitted diseases 2006-2011. 2013 18/03/2013; Available from: <http://www.ulac.lt/lytiskai-plintanciu-infekciju-ataskaitastatistika> (accessed 18.03/2013).
28. ECDC, Detecting and responding to outbreaks of HIV among people who inject drugs: best practices in HIV prevention and control. Meeting report. . 2012, European Centre for Disease Prevention and Control: Stockholm.
29. Karanikolos, M., L. Murauskiene and E. van Ginneken, The Lithuanian health system: pursuing efficiency in the delivery of health care *Eurohealth*, 2013;19(3):44–7 .

## CHAPTER 8.2 SUPPLEMENTARY DATA

### Appendix 1. Major crisis-related events and changes in the health system in Lithuania, 2008–2011

Date	Event/action
2008	Government, with parliament's support, implemented tax reform, separating personal income tax into a personal income tax component and a SHI contribution Unemployment rate reached 5.9%
2009	Ministry of Health and the NHIF implemented a policy to reduce the prices of services paid to health care providers by the NHIF Ministry of Health implemented a plan for improving pharmaceutical accessibility and reducing prices ("The Drug Plan") National Agreement on Crisis Measures is signed between the government and social partners Government begins an ongoing programme for the restructuring of health care institutions, particularly hospitals and services (until 2012)
2010	Unemployment rate peaked at nearly 18% NHIF revenues declined by 23.3% (compared with 2008) due to increasing unemployment and decreasing wages New requirements for generic pricing and prescribing by INN came into force Salaries for doctors and nurses declined by an average of 13% (but recovered to over pre-crisis levels in 2012)
2011	Reimbursement was applied to new drugs for the treatment of lung, breast, stomach and colon cancer as well as for ischemic heart disease, mental health and behavioural disorders, and some other diseases
2012	In conjunction with reductions to some parts of the public health and prevention budget, the State Public Health Service was abolished Unemployment level stabilized at 13.3%