

Health Studies **Lithuania 2013**

Health Sector Development and
its Impact on National Economy



AUTHORS

ROMUALDAS BUIVYDAS, Sveikatos Ekonomikos Centras (Health Economics Centre, SEC)
NERIJUS ČERNIAUSKAS, Sveikatos Ekonomikos Centras (Health Economics Centre, SEC)
ALGIS DOBRAVOLSKAS, Mykolas Romeris University

REVIEWED BY

IGORIS PANOVAS, Mykolas Romeris University
ROMAS LAZUTKA, Vilnius University

PREPARED

implementing the project "Challenges for Social Insurance:
Interaction between generations, genders and socio economic groups".
The research is funded by a grant (No. SIN-05/2010)
from the **RESEARCH COUNCIL OF LITHUANIA**
in association with the **MYKOLAS ROMERIS UNIVERSITY**

ACKNOWLEDGEMENTS

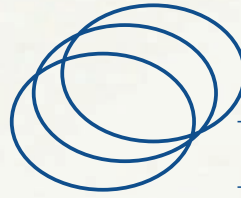
The authors are grateful to **MARINA KARANIKOLOS** (Research Fellow at European Observatory on Health Systems and Policies and the London School of Hygiene & Tropical Medicine, UK) and **EWOUT VAN GINNEKEN** (Senior Researcher at the Department of Health Care Management, Berlin University of Technology, Germany) for reviewing of the publication and very valuable advices

PUBLICATION SPONSORED BY





EU2013.LT



health
forum

Publication is dedicated
**to Lithuanian Presidency
of the European Council 2013**

and to

**Presidency Conference
of the Health Forum
„Sustainable Health Systems
for Inclusive Growth in
Europe“**

November 19 – 20, 2013

Vilnius, Lithuania

Contents

1

CHAPTER

HEALTH: DETERMINANTS AND INDICATORS.....5

- 1.1. Demographic situation **7**
- 1.2. Health statistics **10**
- 1.3. Health of population **16**
- 1.4. The main causes of death **20**
- 1.5. Social-economic factors and behaviour influencing health **23**

2

CHAPTER

HEALTH SYSTEM.....31

- 2.1. Overview of Lithuanian health system **32**
- 2.2. Health system resources and provision of services **33**
- 2.3. Finances of health system **40**
- 2.4. Accessibility of health services according to unmet health care needs and health consumer index **52**
- 2.5. Trust in health care **56**

3

CHAPTER

HEALTH SYSTEM DEVELOPMENT POTENTIAL AND PROGNOSSES.....59

- 3.1. Forecast of demographic change and its impact on health care finances **60**
- 3.2. Priorities for health strengthening in working age population **62**
- 3.3. How the economy benefits from a healthier population **66**
- 3.4. Priorities for health strengthening in elderly population **68**
- 3.5. Recommendations for health sector development **75**

References **78**

1

CHAPTER

HEALTH: DETERMINANTS AND INDICATORS

This study is designed to inform health analysts and assist policy experts to understand and enhance the health system in Lithuania and beyond. An analysis of Lithuania's health system is based on statistics and surveys that are comparable to other countries in Europe and it reveals the potential of the health system to increase the number of saved lives in Lithuania.

Part 1 of the study reminds the reader of demographic trends, key health indicators, several social, economic and behavioural factors that help address strengths and weaknesses of the current health system. One notable trend is that of life expectancy at birth (hereinafter – life expectancy, LE) of Lithuanian population which started departing from the rest of Europe and performed relatively worse since the 1970's. This was especially true in the rural, middle aged men population. Circulatory and digestive systems diseases and external causes of death may explain Lithuania's poor health performance as compared to Europe. To a large extent these can be related to social, economic and behaviour factors. Fortunately, substantial improvements were achieved in infant mortality, health of population as measured by indicator of healthy life years (HLY) and self-assessment of health improved since 2005 and came closer to European average.

Part 2 looks at Lithuania's health care system specifically. It is found that health system is quite proficient in the number of professionals working in the sector, although a shortage of nurses and the concentration of physicians within in larger cities are observed. Likely there is an excess of hospital beds and discharges due to certain diseases which are possible signs of inefficiency. According to Eurostat data Lithuanians indicated that they were able to access health care services even though the waiting time should be reduced. The health system in Lithuania is seen as trusted when compared to many other institutions and the level of trust is quite stable in the longer period, however the level of corruption and bribery should be diminished. Health consumer index in Lithuania has also improved on patient's rights, survival of new-borns and vaccination but some health care outcomes and access to some innovative pharmaceuticals is relatively low. Importantly, health expenditures in Lithuania are relatively lower than what the level of income (GDP) would allow. This holds true for both total and public health expenditures. In particular prevention and public health and investments receive less funding than in many EU states.

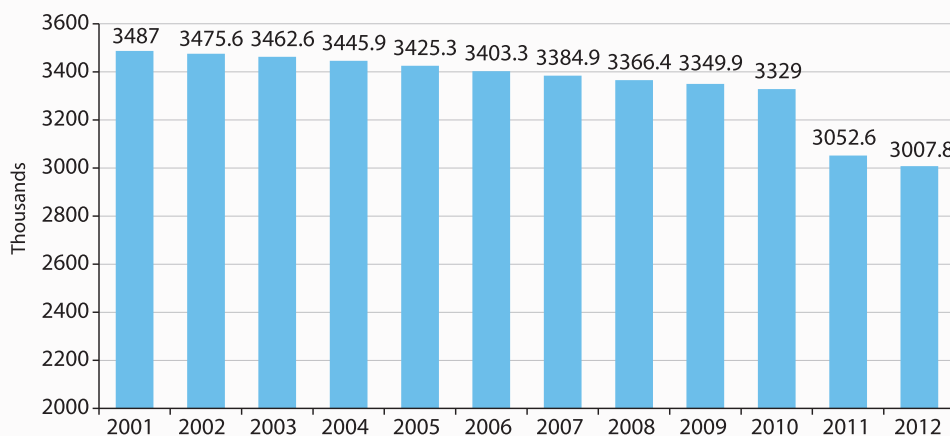
Part 3 focuses on prognosis and recommendations for the health system in Lithuania, particularly on foreseen health outcomes, contribution of health to the economy and expenditures of the health system. If the mortality rates of EU average are reached in Lithuania more than 25 thousand Lithuanian residents would be saved until year 2020. The greatest number of working population's lives could be saved due to a reduction in mortality of external causes of death and cardiovascular diseases. In addition, a stable and well-functioning health system is able to enhance the performance of the rest of the population thereby generating up to 10 billion Litass (3.2 billion Euro). Because real GDP in Lithuania is growing, whether the trends of public health care spending in Lithuania will return to European trends and in 2020 public health expenditure will reach between 6.2 and 6.4 per cent of GDP depends increasingly on political will and on whether it could be shown that the extra funds will be used not only to enhance health care system performance, but to improve health outcomes as well – save more lives and reduce number of those who are sick.

1.1. Demographic situation

Number of residents in Lithuania at the beginning of 2012 was 3 007.76 thousands¹, i.e. by 44.8 thousand less to compare with the beginning of 2011. There were several reasons for the decrease in population – negative net migration and negative natural turnover. Number of residents has decreased by 479.24 thousand during the recent eleven years (2001-2011).

Figure 1. Change in number of residents (population)

Source. Statistics Lithuania



Based on statistical data the majority of residents – 83.2 thousand – emigrated in 2010. This number exceeded recorded emigration in 2009 by almost 4 times. One of reasons explaining why so many of emigrants declared departure from Lithuania in 2010 was an implementation of the Law of the Republic of Lithuania on Health Insurance to pay compulsory health insurance contributions for residents within Lithuania. Thus, even emigrants that left Lithuania earlier could still declare a permanent residency in a foreign country in 2010. The emigration indexes for the period 2009-2011 of Lithuanian residents are very high², however comparison with emigration indexes of neighbouring Baltic States (Latvia and Estonia) during the 1990-2011 period demonstrated that total share of emigrants is quite similar: percentage of emigrants from Lithuania was about 12.6%, from Estonia – 11.3% and from Latvia – 10.8% of population. The highest rates of emigration in Latvia and Estonia were reported during the period 1992-1996, and from Lithuania – during the period 2009-2011.

34.07 thousand were born in Lithuania in 2012, i.e. by 317 infants less to compare with 2011. The lowest birth rates were reported in 2002 – 8.6 births per 1000 population; this number has increased during the next seven years and reached 10.8 births per 1000 population in 2011. There were 40.94 thousand of death cases reported in Lithuania in 2012, reaching 13.5 deaths for 1000 population.

At the beginning of 2012 population of Lithuania counted 1,385.67 thousand. (46%) of males and 1,622.09 thousand (54%) of females³. At the beginning of 2012 there were 711.07

¹ Data of population and housing census of the Republic of Lithuania in 2011.

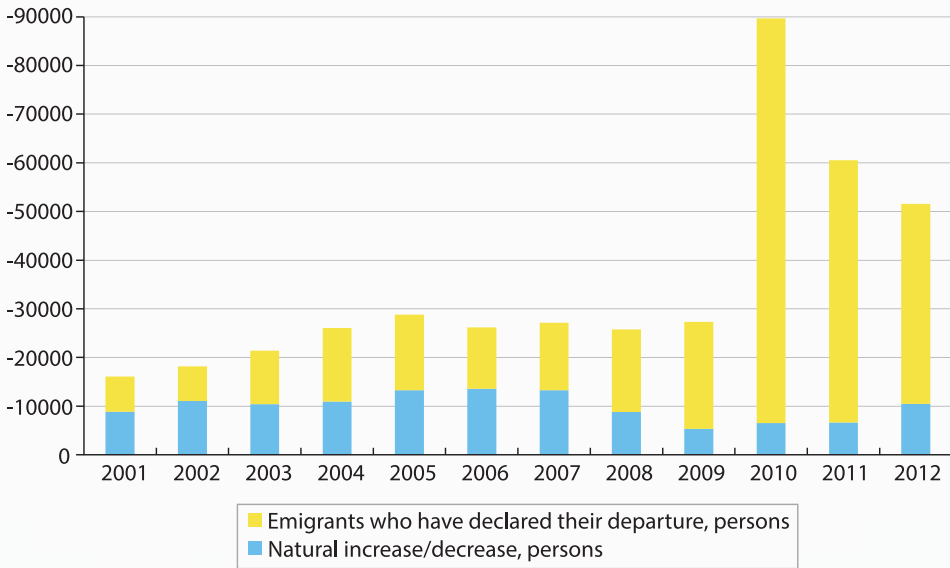
² Data from Statistics Department of Lithuania.

³ Data for the year 2011 were calculated based on the results of population and housing census of the Republic of Lithuania in 2011.

thousand of residents, or 23.64% of all population, aged 60 years and above in the country; this number in 2001 was 668.6 thousand or 19.2%; the society is getting older – the proportion of people aged 60 years and above to compare with total population is increasing. Decreasing number of residents both as a result of natural turnover of generations and of emigration has negative impact on the life of the society; changes in relative size of age groups take place in the general structure of residents – groups of young and working age population are getting smaller, at the same time groups of elderly people grow up.

Figure 2. Effects of migration and natural decrease / increase on Lithuania's population

Source. Statistics Lithuania



The figure below illustrates the changes in the structure of Lithuanian population during the period 2001-2012. The analysis of population structure (proportion of the population of different age from the total number of residents), covering the period of 10 years discloses the changes that already took place. Assuming the population structure will retain tendencies in the next 10 years as it did in the last 10 years the number of adolescents and young people will be smaller in 2020 in Lithuania, but number of people in 30-40 years old group, i.e. working age population, and those of 60-70 years old will increase.

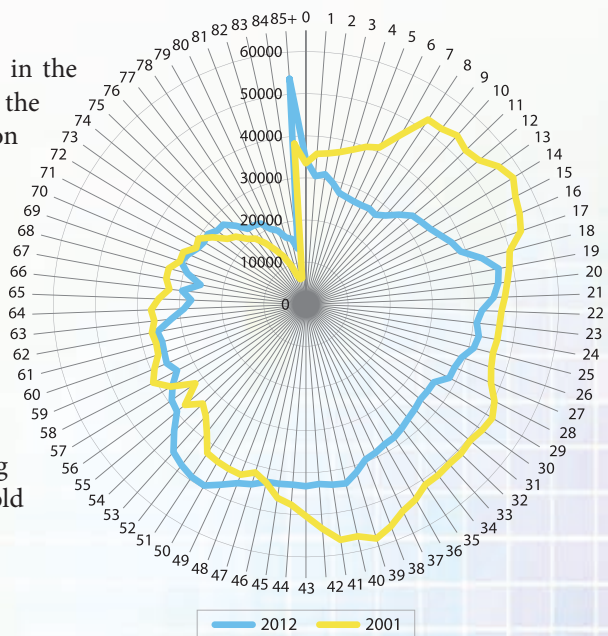


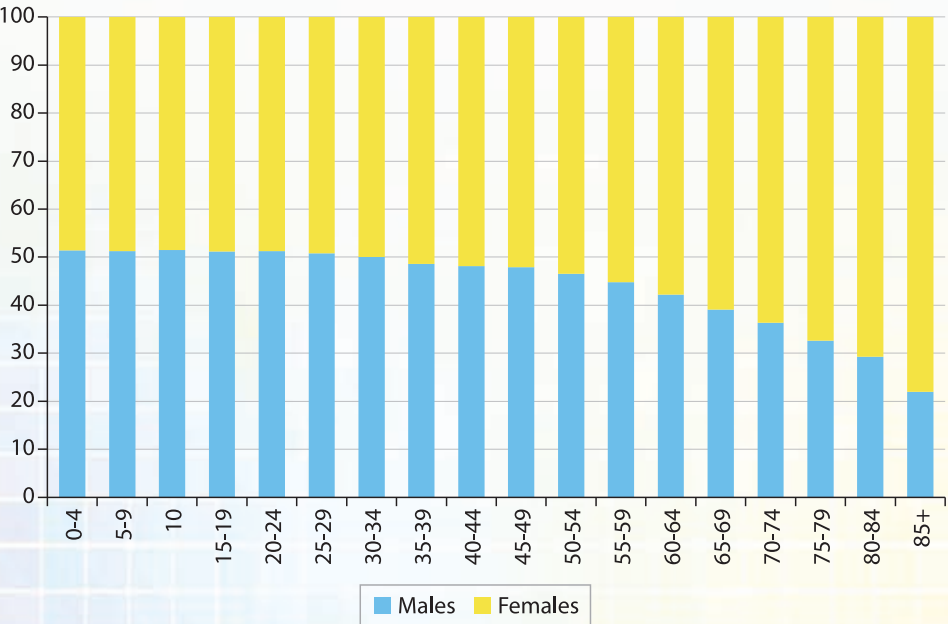
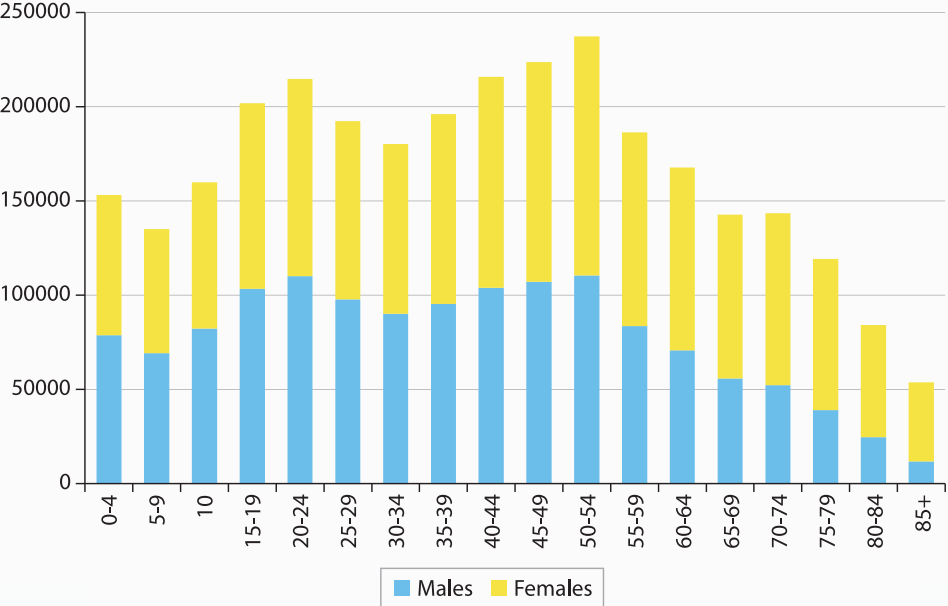
Figure 3. Population by age

Source. Statistics Lithuania

Figure 4 shows changes in the population structure by gender and age groups. At the beginning of 2012 males constitute about half of residents in the age groups under 30 years old. However, due to higher mortality rates among males, in the age groups above 35 years old there are relatively more females. Females constitute over 70% of people above 80 years old, and almost 80% of those above 85 years old.

Figure 4. Number of residents in Lithuania according to gender and age groups, 2012 (at the beginning of the year)

Source. Statistics Lithuania



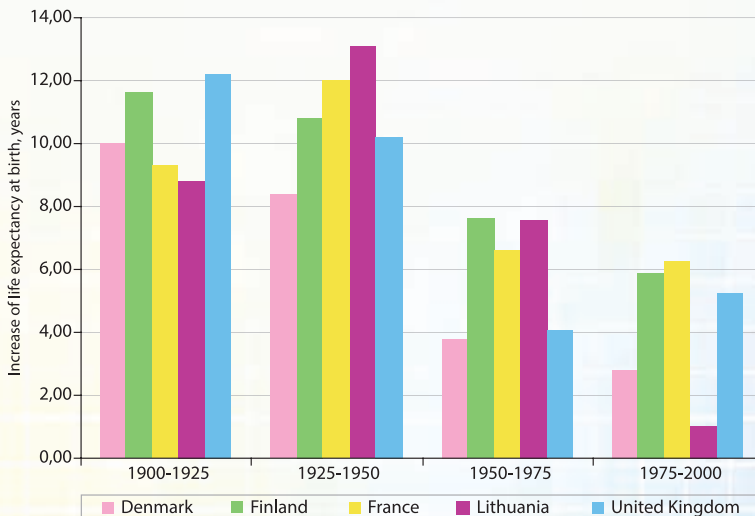
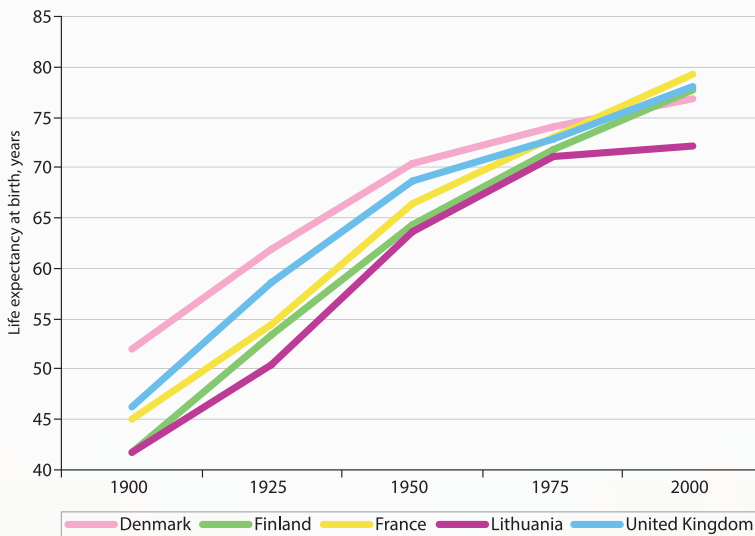
1.2. Health statistics

Life expectancy at birth

Life expectancy of Lithuanian population has changed little during the recent decade, however impressive changes can be observed if analysis would cover significantly longer period – since 1900. The figure below shows that LE changes of Lithuanian residents were very similar to those of residents in Western European countries (such as Denmark, Finland, France and UK) up the year 1975. Since 1975 till 2000 life expectancy in Lithuania rose by a single year while in Western Europe LE increased by 3 to 6 years.

Figure 5. Comparison of LE in population of Lithuania, Denmark, Finland, France and United Kingdom in 1900-2011

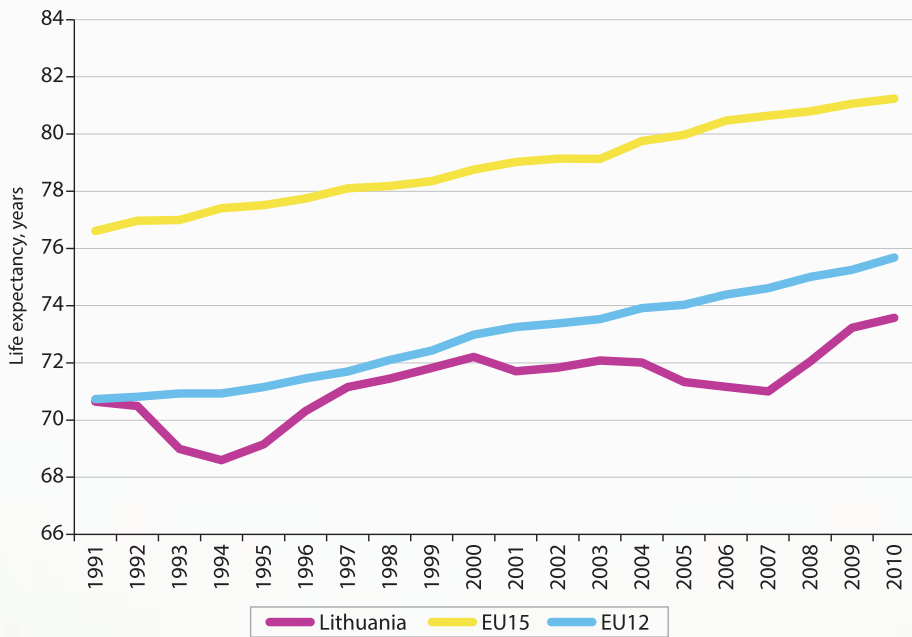
Source: <http://www.gapminder.org/data/>; SEC calculations



Population health in Lithuania during the last two decades has improved, but not as steadily nor as fast in most other EU countries. There were two time intervals in which life expectancy decreased in Lithuania. In 1992-1995 because of the enormous social and economic changes in the country after independence the average life expectancy in Lithuania decreased. Despite subsequent convergence towards EU12⁴ trend, life expectancy in Lithuania stopped increasing by 2000, and even began to decline in 2005-2007. The causes of this decrease are less clear. To compare with EU countries, the difference in LE index between Lithuania and LE index of EU12 countries has increased from 0.77 years (in 2000) to 2.11 years (in 2010), and when Lithuania is compared with EU15⁵ countries this difference has grown from 6.55 years (in 2000) to 7.67 years (in 2010).

Figure 6. Comparison of life expectancy (LE) in Lithuania and in other EU member states

Source: Statistics Lithuania, WHO



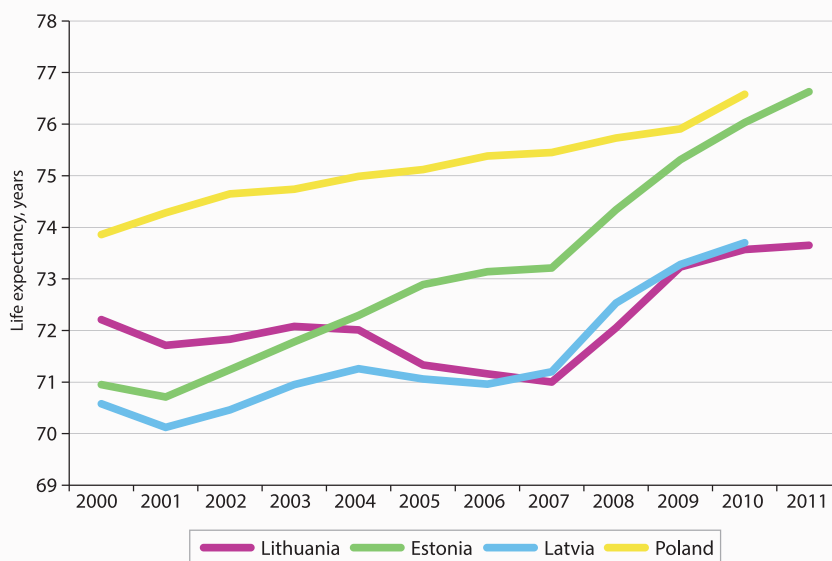
Similar trend was observed in Latvia and much less so in Estonia. Moreover, according to mortality statistics males' mortality dynamics were much more negative in Lithuania.

⁴ EU members since May 2004.

⁵ EU members before May 2004.

Figure 7. Comparison of life expectancy (LE) in Lithuania and in neighbouring countries

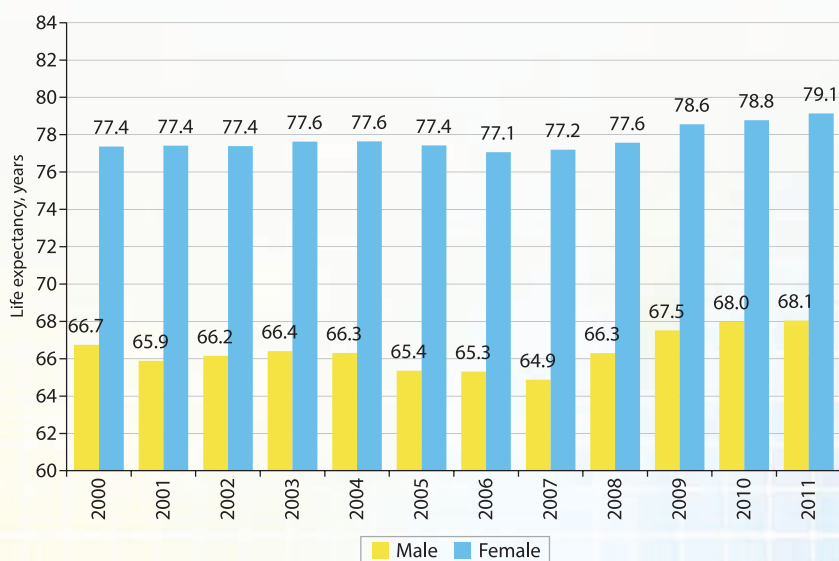
Source: Statistics Lithuania, WHO



In 2011 the average life expectancy in Lithuania was 68.05 years for males, and 79.14 years for females⁶ (accordingly 66.7 and 77.4 years in 2000). A big gap – 11.09 years – still remains between the average life expectancy of males and females. It should be noted, that males were affected more by the shock in 2005-2007 than women. However male life expectancy rebounded in 2010.

Figure 8. Comparison of LE between males and females

Source: Statistics Lithuania

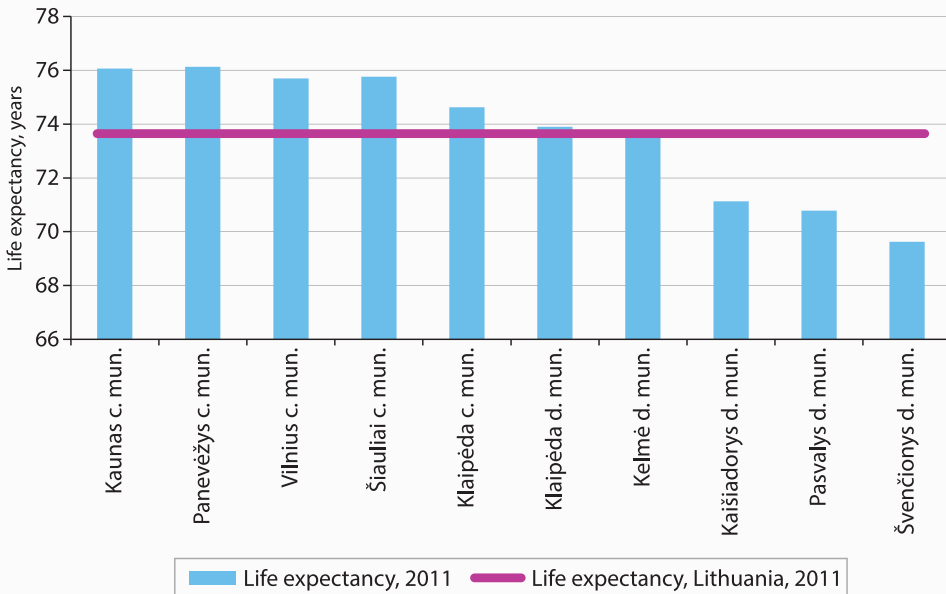


⁶ Data for the year 2011 were calculated based on the results of population and housing census of the Republic of Lithuania in 2011.

Life expectancy differences should also be noted between more urban and more rural regions. For the year 2011 the LE index for Lithuanian residents has reached 73.65 years in 2011, LE of people living in cities, such as Kaunas, Panevėžys, Vilnius, Šiauliai and Klaipėda was higher than average Lithuanian index, however for the residents in some rural districts it did not reach 70 years.

Figure 9. Comparison of LE in Lithuania and in selected municipalities, 2011

Source. Statistics Lithuania, SEC calculations



Healthy life years⁷

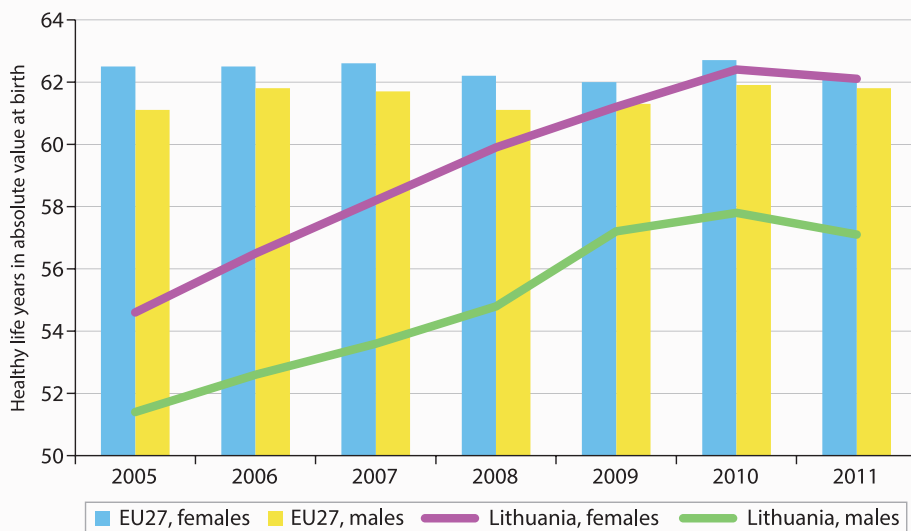
Another indicator of population health is indicator of healthy life years (HLY). As can be seen, HLY in Lithuania increased much faster than EU27⁸ for both females and males. As a consequence, Lithuania's HLY indicator for females came close to EU27.

⁷ Composite measure of health that combine mortality and morbidity data to represent overall population health on a single indicator. Measures the number of remaining years that a person of a certain age is expected to live without disability.

⁸ All European Union member states.

Figure 10. Healthy life years at birth

Source: Eurostat



The below figure compares HLY in Lithuania and other EU countries in 2011. Lithuania's average is ahead of countries such as Germany and Denmark. Males, however, are expected to live fewer healthy years than the majority of EU member states.

Figure 11. Comparison of healthy life years of females among EU countries, 2011

Source: Eurostat

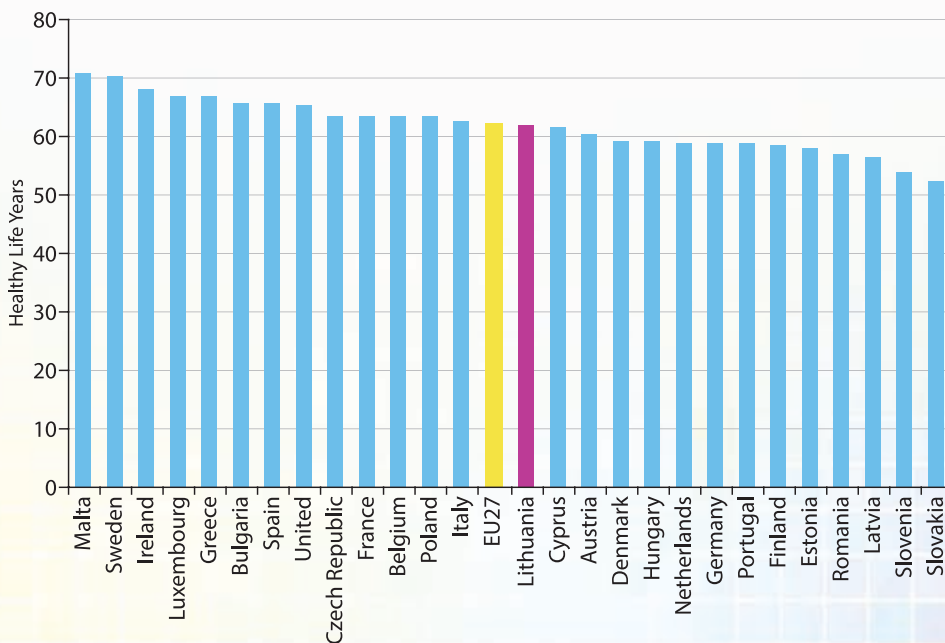
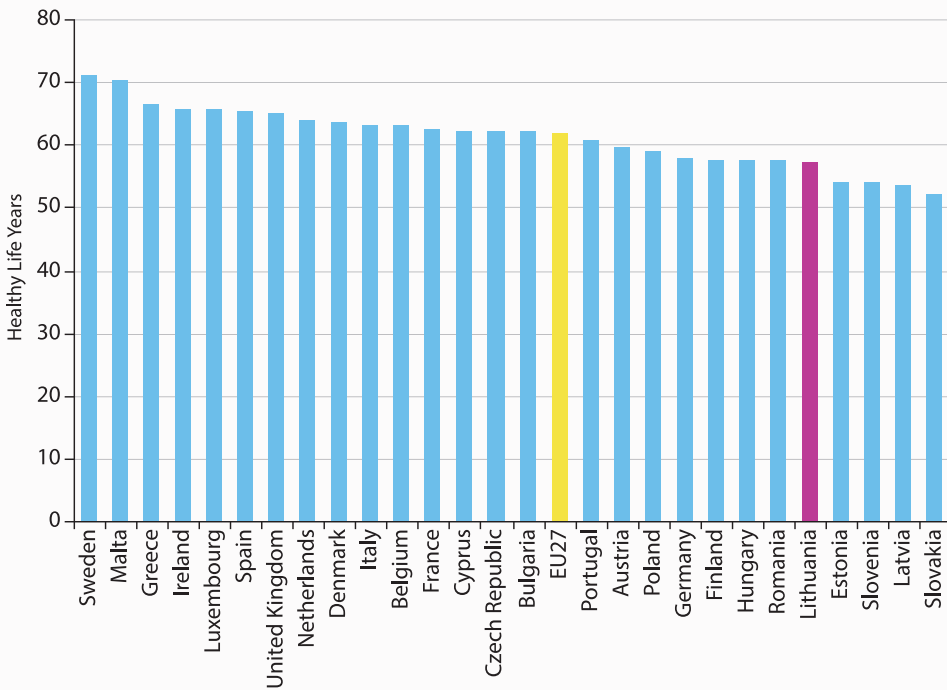


Figure 12. Comparison of healthy life years of males among EU countries, 2011

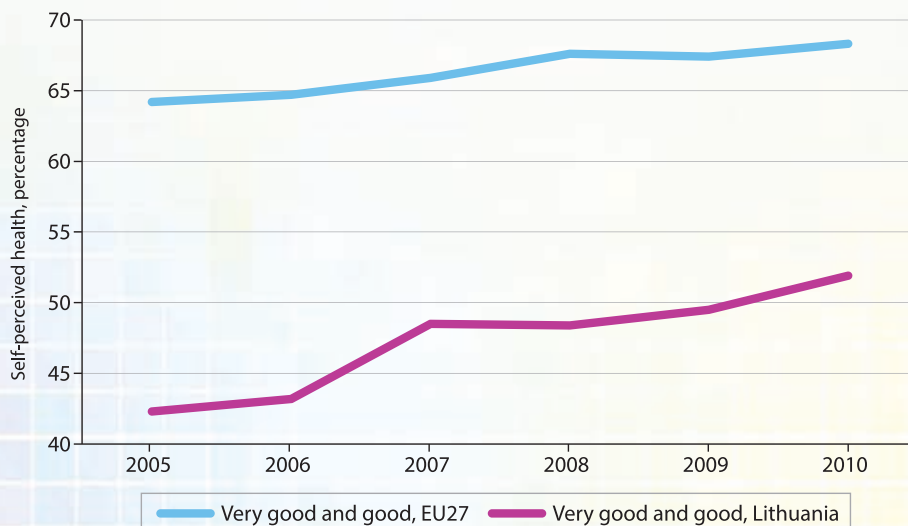
Source: Eurostat



The two components of the calculation of the HLY are life expectancy and self-perceived disability assessed by health surveys. Self-assessment of health in Lithuania shows improvement of health status of population. However it is still behind EU27 average.

Figure 13. Comparison of the percentage of population assessing their health status as very good and good between Lithuania and EU27 countries

Source: Eurostat

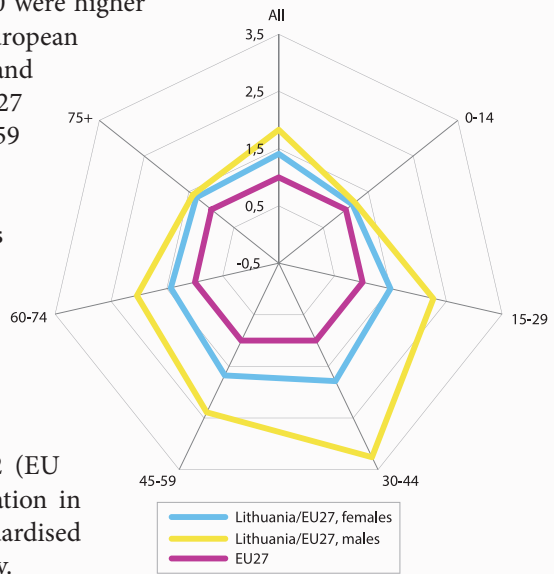


1.3. Health of population

The mortality rates in Lithuania in 2010 were higher to compare with average indicators of European Union (EU27) countries for all age groups and both genders. Highest difference from EU27 average is observed for those aged 15 to 59 and especially males aged 30-44.

Figure 14. Standardised mortality rates according age groups in Lithuania and other EU27 countries. EU27 average = 1

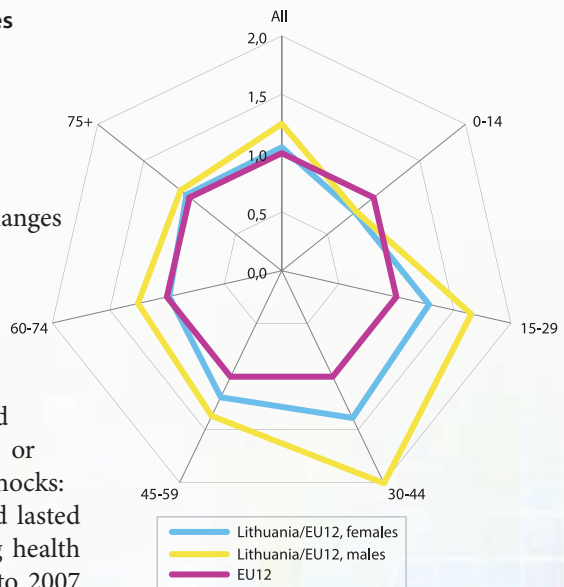
Source: WHO, SEC calculations



To compare mortality rates with EU12 (EU members since May 2004) countries situation in Lithuanian was superior according to standardised mortality index in 0-14 years old group only.

Figure 15. Standardised mortality rates according age groups in Lithuania and other EU12 countries. EU12 average = 1

Sources: WHO, SEC calculations

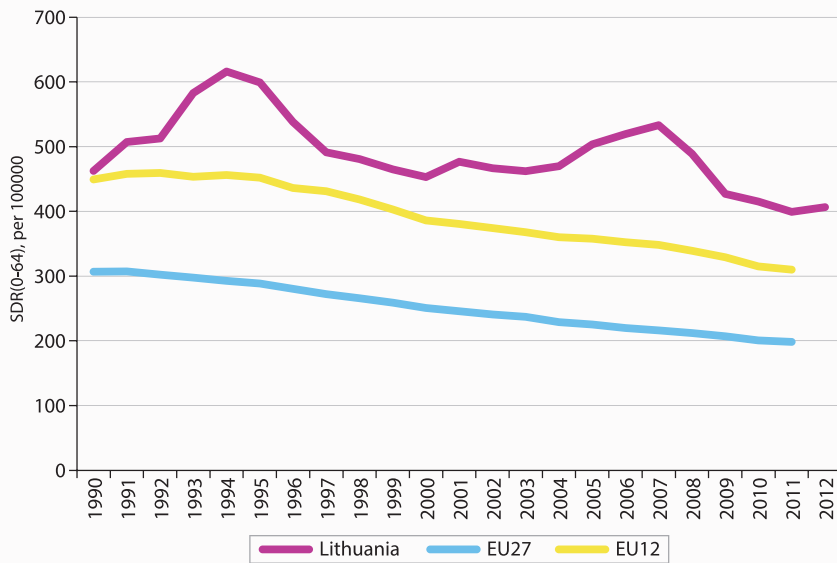


The figure below demonstrates that changes in standardised mortality rate in Lithuania by all causes of death and for age groups 0-64 mirrored life expectancy trend. In general, the mortality rate slightly decreased throughout the two decades. At the same time, Lithuania performed relatively worse than an average EU 12 or EU 27 country because of two mortality shocks: a mortality crisis that started in 1992 and lasted until 1994 and at a number of increasing health problems that were observed from 2000 to 2007 and will be discussed below.

In 2010 the biggest difference in mortality rates between Lithuania and EU27 countries was observed in 0-64 year's age group, it was almost 2-fold higher than respective average.

Figure 16. Change in standardised mortality rate, 0-64 years age group

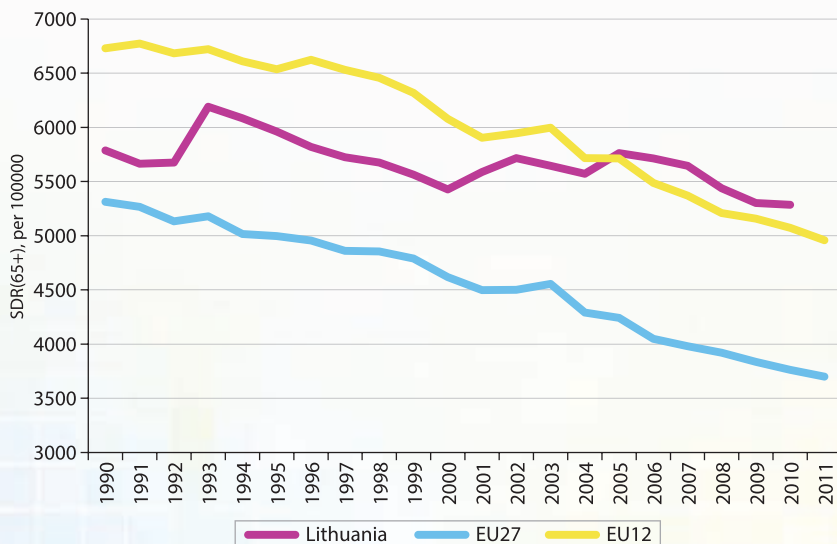
Source: WHO



Changes in standardised mortality rate in Lithuania for age groups 65+ improved slower than in EU and as a consequence fell behind EU12 average.

Figure 17. Change in standardised mortality rate, 65+ years age group

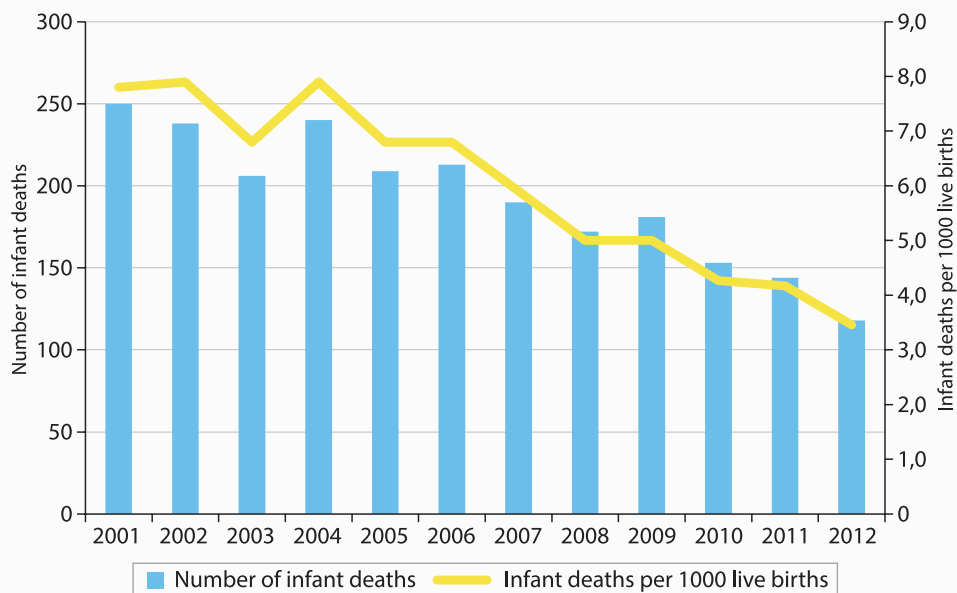
Source: WHO



Infant mortality in Lithuania has been decreasing, Number of infant deaths for 1,000 born alive babies has decreased almost twice during the last decade (4,2 infant deaths were attributed to 1,000 born alive in 2011, and 7.8 – in 2001). In absolute numbers infant death cases per year during the period 2001-2012 decreased from 250 (in 2001) to 118 (in 2012).

Figure 18. Infant deaths

Source: Statistics Lithuania



Regional health inequalities should also be noted. The differences in standardised mortality rates among the municipalities in Lithuania are as high as up to 1.8 times. Number of deaths in Šalčininkai municipality was by 1.8 higher and in Pagėgiai and Ignalina municipalities – by 1.6 higher than in Birštonas. Standardised mortality rate was superior to the average rate of EU12 countries in Birštonas municipality and Panevėžys city only. Despite the fact that Lithuanian infant mortality rates are close to the average index of EU27 countries (4.18) in some rural municipalities (such as Rietavas, Pakruojis, Radviliškis, Varėna, Kėdainiai, Prienai (average values of 200-2011 were compared) these indexes were by 1.5 times higher to compare with average Lithuanian indexes.

Figure 19. Change in standardised mortality rate in Lithuania by different age groups

Source: WHO

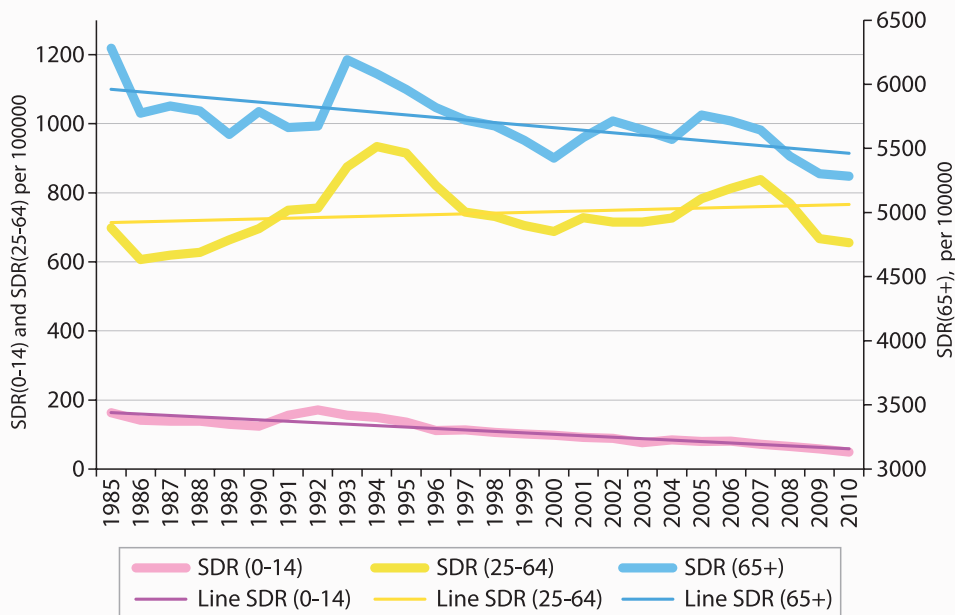
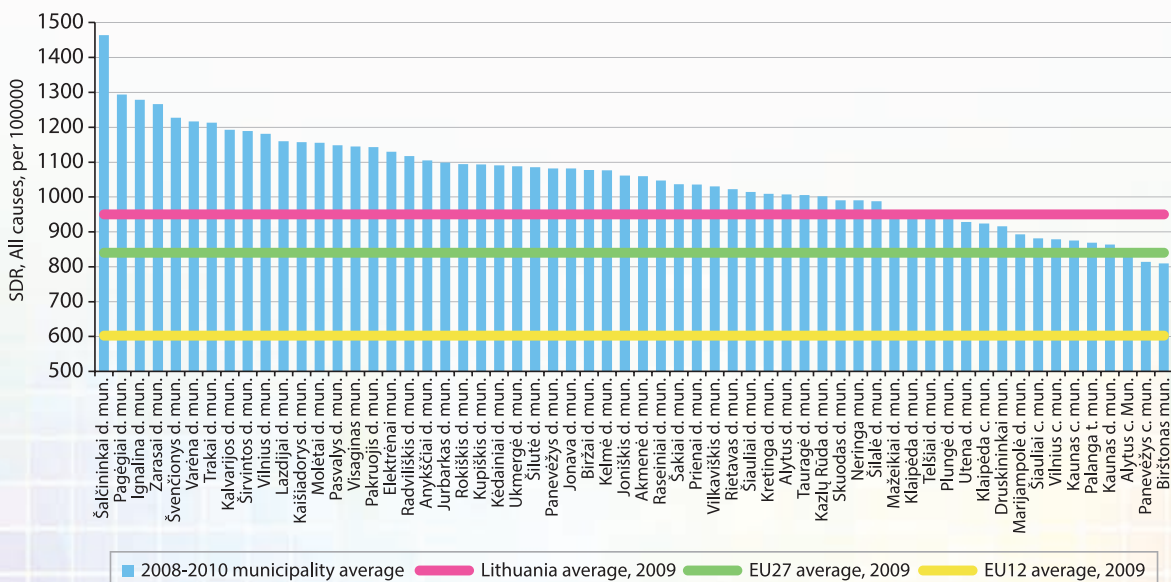


Figure 20. Standardised mortality rates per 100 thousand population

Source: Health Information Centre of Hygiene Institute (HISIC)

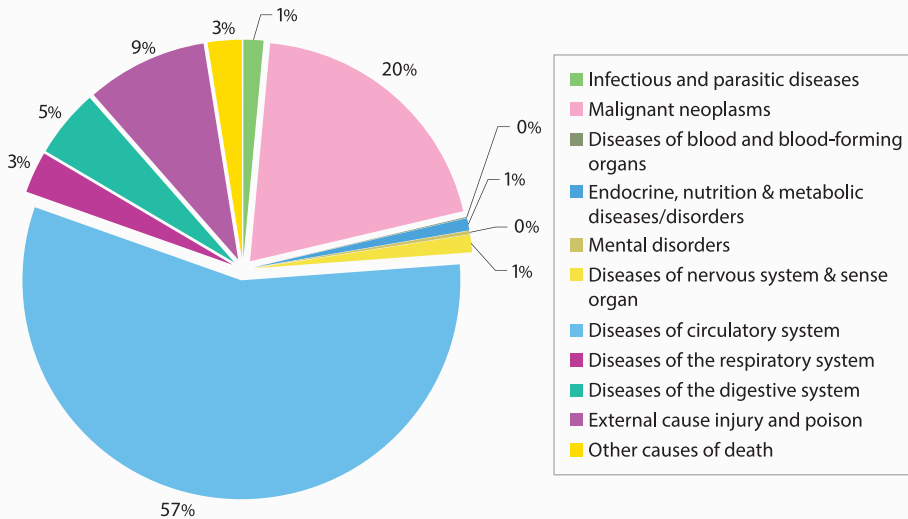


1.4. The main causes of death

Three main causes of death – cardiovascular diseases, malignant neoplasm (cancer) and external causes of death – accounted for more than 85% of all death causes in Lithuania in 2010. Five main causes of death (the three mentioned above plus diseases of the digestive system and respiratory system) accounted for more than 93% of all death causes.

Figure 21. Proportion of death according to causes of death, per cent, 2012

Source: HISIC



Cardiovascular diseases are the most common cause of death in Lithuania. The average standardised cardiovascular mortality index in Lithuania is more than 2.3 times higher to compare with the respective index of EU27 countries. The highest mortality rate was reported for those above 74 years. Despite the fact that incidence of cardiovascular diseases stabilised, morbidity rates are still increasing. Incidence of cardiovascular diseases and morbidity starts to increase significantly in the above 44 years old population. Number of hospitalisations due to cardiovascular diseases in Lithuania is also very high – this index was more than 1.8 time higher to compare with average index of EU27 countries. 5996 persons (20 per cent of all disabled persons) were certified for the first time as disabled as a result of this disease in 2011 (from 18 years old to pension age group).

Relatively big number of deaths due to *external causes* is an indicator that there is a lack of coordination and support between different sectors – possibly a better functioning public health system could address this problem more effectively. The standardised mortality due to external causes of death index in Lithuania is more than 3-fold higher to compare with the respective index of EU27 countries. Despite reduction of mortality due to external cause of death, this cause of death is still ranked as the third according to number of deaths. Accidental falls (1.5 times more than in EU27), suicides (2.8 times more to compare with EU27), deaths caused by exposure to excessive natural cold, in car accidents (1.6 times more than in EU27), drowning and submersion (7.5 times more to compare with EU27), accidental poisoning by alcohol (11.7 times more than in EU27) make up the largest causes of external deaths. Number of deaths due to external causes significantly varies in different age groups to compare with

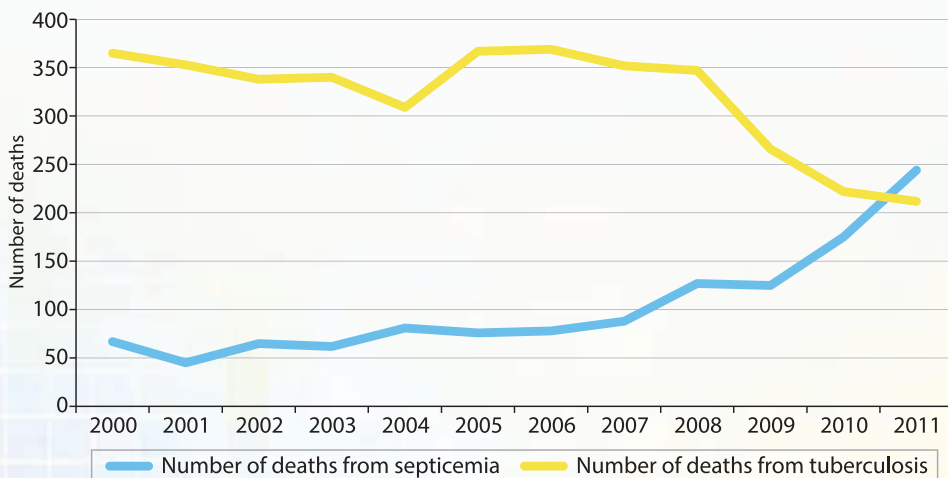
other mortality indexes described above (exception is digestive system diseases). The highest number of deaths due to external causes in Lithuania were reported among 20-74 years old males; number of deaths in 2011 among those aged 45-54 years exceeded 700 and accounted for about 25% of all deaths cases of males due to this cause in this age group. Moreover, 1782 persons were certified for the first time as disabled due to injuries in 2011 (from 18 years old to pension age group).

The average standardised mortality from *digestive system diseases* rate in Lithuania is 1.8 times higher to compare with the respective index of EU27 countries. Incidence of digestive system diseases, morbidity and mortality rates are growing and has already become the fourth cause of death according to number of deaths. More than 22% of all deaths due to digestive system diseases accounts for deaths caused by alcoholic liver disease, and the share of deaths caused by liver cirrhosis and fibrosis is bigger than 20% (2-fold higher to compare with average of EU27). Mortality rates by age groups and gender also should be noted – there is very high number of males aged 35-74 years dying as a result of digestive system disease.

Rare cases of death due to *infectious and parasitic diseases* have been reported among Lithuanian residents – they account about 1% of all causes of death only, however it should be noted that despite decrease in morbidity and incidence rates of infectious and parasitic diseases, number of deaths due to infectious diseases remains quite stable; this index in 2010 was about 1.45 times higher to compare with average index of EU27 countries. Tuberculosis was the cause of more than 38% death cases caused by infectious and parasitic diseases. Increasing proportion (about 44%) of death cases was accounted for death caused by septicemia in 2011. As it can be seen in the figure below, number of people died due to tuberculosis during the period of 2000-2011 has reduced by more than 40%, however number people died as a result of septicemia has increased 3.6 times.

Figure 22. Comparison of deaths caused by septicemia and tuberculosis

Source: HISIC



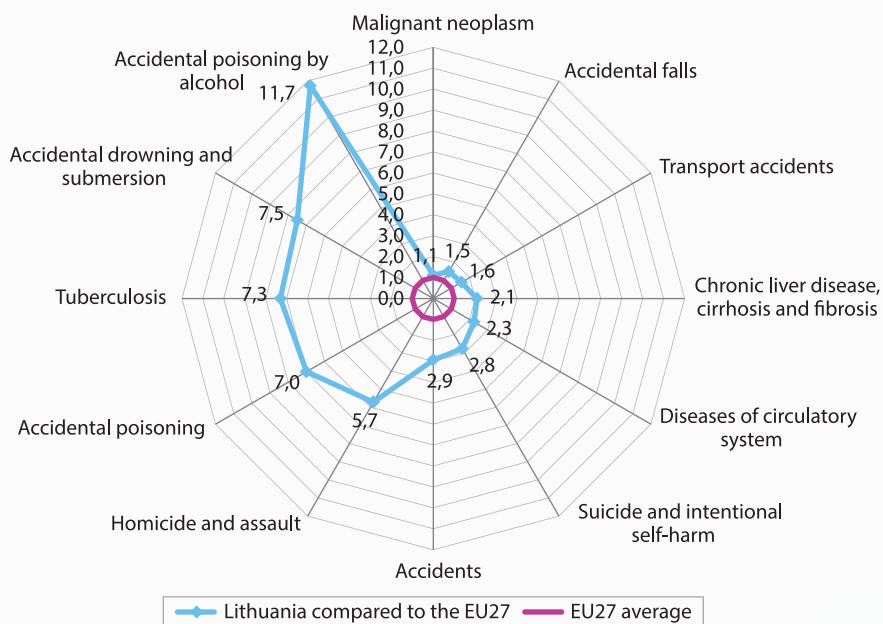
The standardised tuberculosis mortality rate in Lithuania is more than 7-fold higher to compare with the respective index of EU27 countries. The highest number of deaths was reported among 35-74 years old males and among females aged above 70 years.

As mentioned above, the comparison of Lithuanian mortality rates with the respective average rates of EU countries revealed that the biggest slippage from the average rates of EU27

countries in 2010 was in mortality rates for infectious and parasitic diseases (1.45 times), digestive system diseases (1.85 times), cardiovascular diseases (2.23 times) and external cause of death (3.1 times). However differences from EU average mortality rates for more detailed causes of deaths are even greater, such as tuberculosis (7.3 times) or accidental poisoning by alcohol (11.7 times).

Figure 23. Comparison of mortality rates between Lithuanian and EU27 countries by selected causes of death. EU average = 1

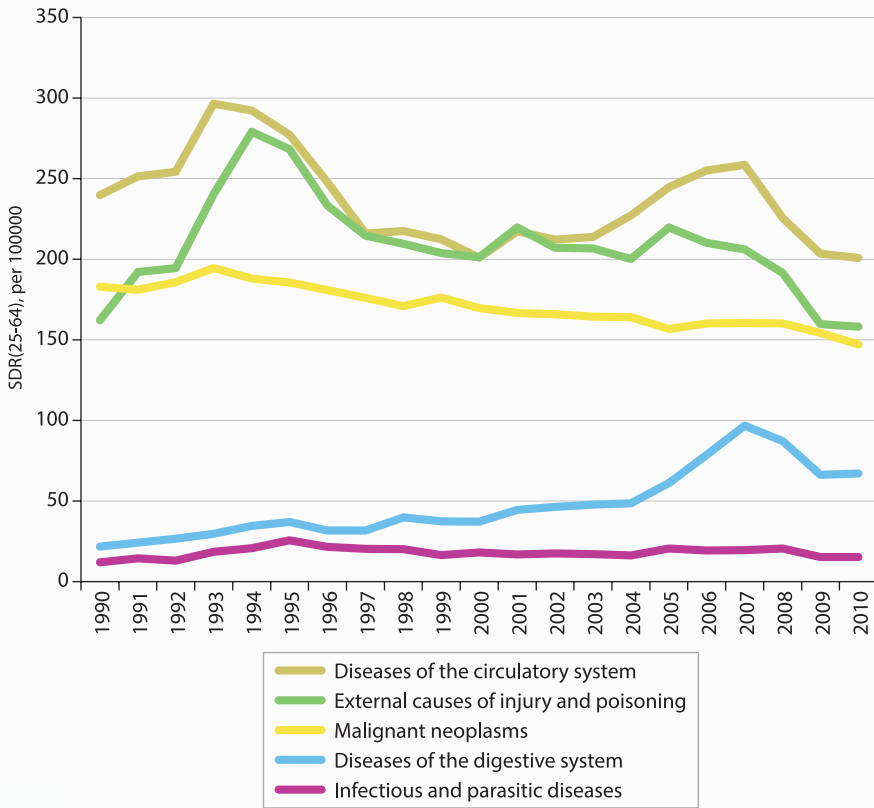
Source: WHO, SEC calculations



The figure below demonstrates that changes in standardised mortality rates according to the main diseases groups in Lithuania for age groups 25-64 and helps to explain which diseases were responsible for mortality shocks in the last two decades: diseases of the circulatory and digestive systems and external causes of death. To a large extent these diseases are influenced by social economic factors and life style choices.

Figure 24. Standardised mortality rates according to the main diseases groups in Lithuania for age groups 25-64

Source: WHO

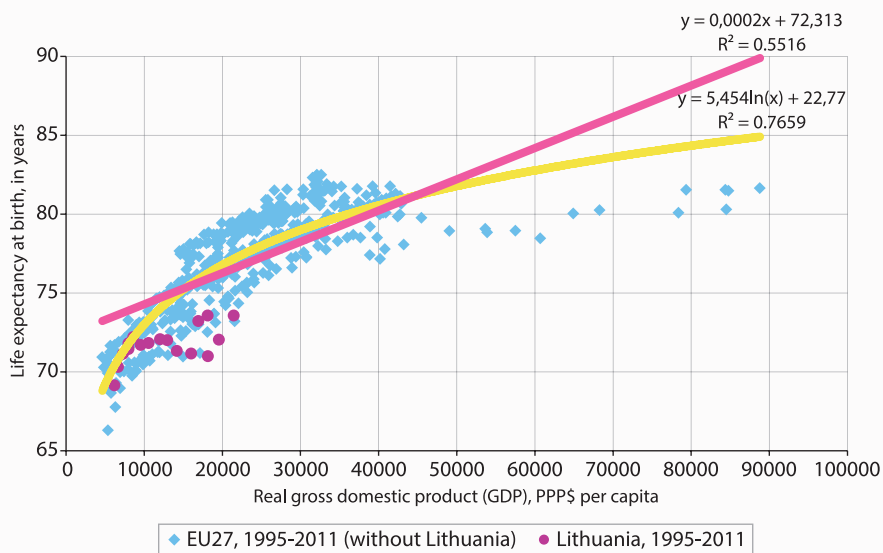


1.5. Social-economic factors and behaviour influencing health

There is a strong and relation between health outcomes and social and economic progress. It is known that higher health spending per capita is generally associated with higher life expectancy at birth. Figure below shows the relationship between life expectancy at birth and health expenditure per capita in PPP\$ across EU countries. As can be seen life expectancy indicator in Lithuania deviated substantially from main EU trend. Changes in GDP per capita may influence both life expectancy and health expenditure per capita, but other factors may have great influence on life expectancy across countries as well.

Figure 25. GDP and life expectancy

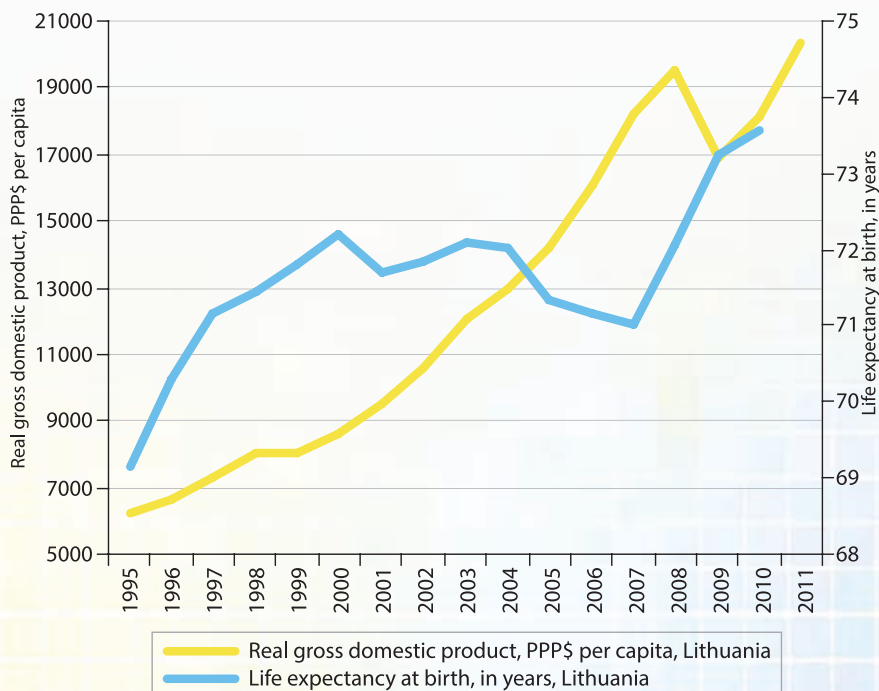
Source: WHO, SEC calculations

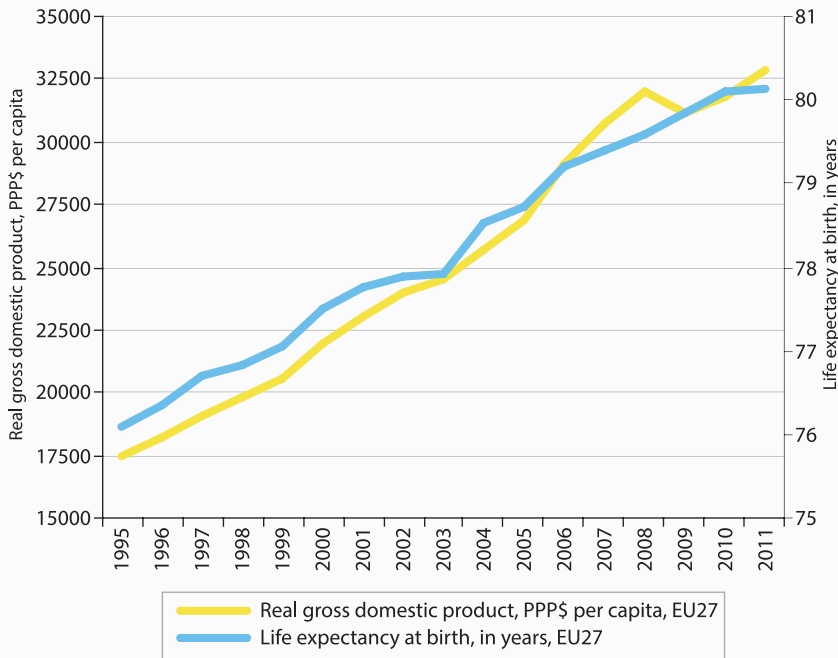


As shown in the two line graphs, even though the economy in Lithuania was growing from 1995 until 2009, LE experienced fell from 2004 till 2007. This is contrary to what was observed in the rest of EU 27 countries.

Figure 26. Comparison of GDP and LE

Source: WHO



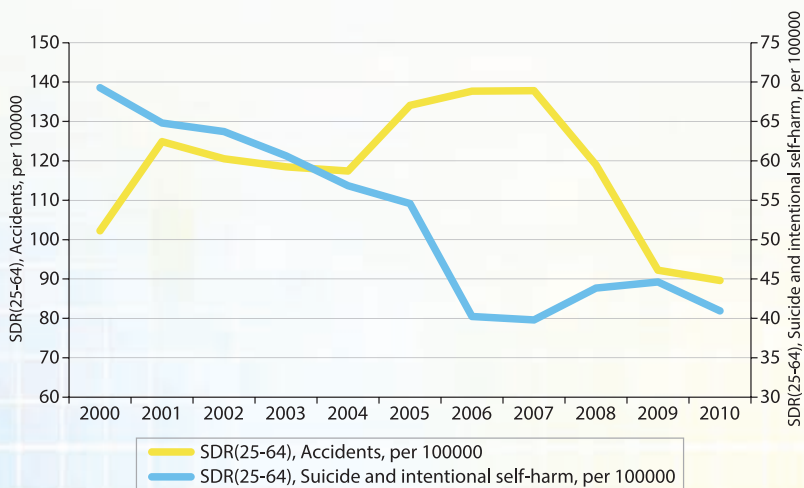


Since income growth did not fully explain trends in life expectancy and mortality, other possible causes were looked at as well. As indicated in prior chapter life expectancy was significantly reduced due to external causes of death. External causes can be separated into segments: accidents and those that are related to suicide or intentional self-harm.

The below comparison of number of deaths because of accidents per 100000 population and number of suicides per 100000 population shows that during the economic upturn in Lithuania the number of suicides decreased, but number of accidental deaths increased. Worth to mention, that the same relation was observed in a study carried out in United States.⁹

Figure 27. Comparison of number of accidents and suicide cases

Source: HISIC



⁹ Ruhm, Christopher J. 2000. "Are Recessions Good For Your Health?" Quarterly Journal of Economics. May, 115:2, pp. 617-50.

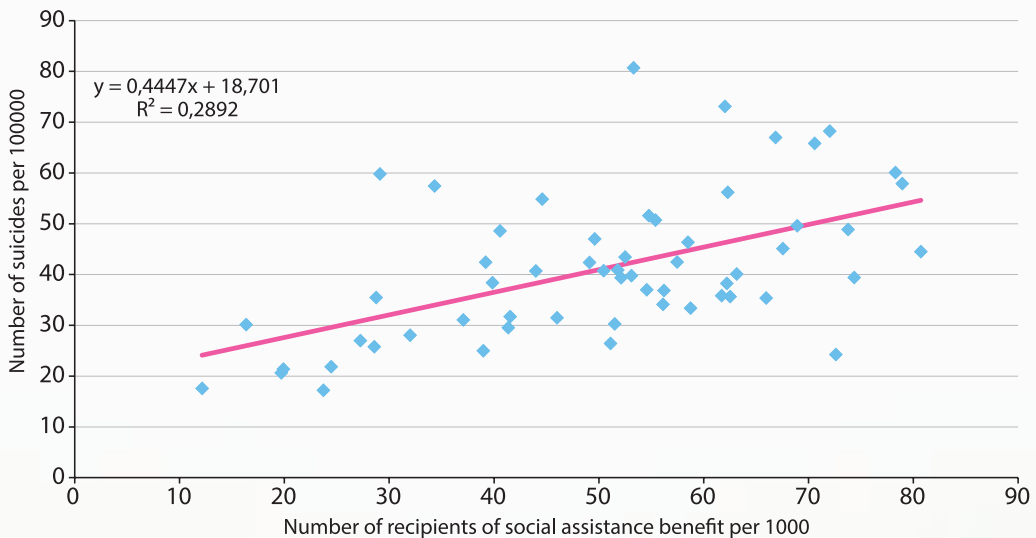
Social-economic factors

Additional factors to income which may have contributed to suicide trends are unemployment and income inequalities. This is because there is a long history of social gradients and long term unemployment having an influence on suicide rate.^{10, 11, 12}

The relation between number of suicides and poverty was also confirmed by the observed correlation between number of suicides per 100 population residents and number of social assistance benefits per 1,000 population (by municipalities of Lithuania), comparisons made for the period 2009-2010. The figure below demonstrates a significant (p -value < 0,01), quite strong correlation (+0.537) between number of suicides and number of social assistance benefits (this partially reflexes level of poverty).

Figure 28. Correlation between number of persons receiving social assistance benefits and number of suicide cases

Source: Statistics Lithuania, HISIC, SEC calculations



Note. One municipality with minimal number of the social assistance benefits recipients and one municipality with maximal number of the social assistance benefits recipients were not included in the calculations.

Unemployment (both general and long-term) rate in Lithuania decreased during the period 2000-2008, however economic crisis resulted in increased unemployment rates. There was quite a strong statistical correlation between long-term unemployment and number of suicides (especially among working age population). Differences of unemployment in individual territories also should be noted – unemployment rate in some municipalities in Lithuania is more than 2-fold higher to compare with others.

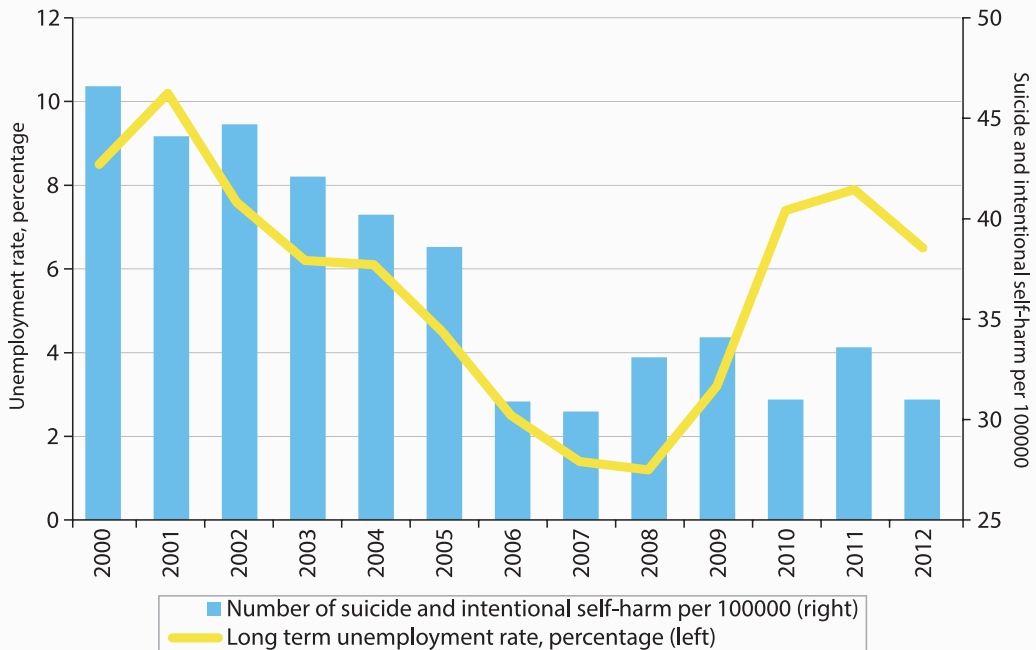
¹⁰ Johansson, S. E., & Sundquist, J. (1997). Unemployment is an important risk factor for suicide in contemporary Sweden: an 11-year follow-up study of a cross-sectional sample of 37 789 people. *Public health*, 111(1), 41-45.

¹¹ KELLY, M. P., & DOOHAN, E. (2011). The Social Determinants of Health. *Global Health*, 75.

¹² Blakely, Tony A., Sunny CD Collings, and June Atkinson. "Unemployment and suicide. Evidence for a causal association?." *Journal of Epidemiology and Community Health* 57.8 (2003): 594-600.

Figure 29. Unemployment rate and suicide cases

Source: Statistics Lithuania, HISIC



Lifestyle

As seen before accidents increased when economy was growing and unemployment was low (contrary to suicide trends). May be, that behaviour and lifestyle of residents did not adapt to rapid changes associated with rising income. For example, an increase in income allowed consuming more alcohol, increased number of travels with private cars and increased number of occupational traumas, especially in building and construction sector.

In general, one of the determinants of premature death and as a consequence for decreased life expectancy, – is an unhealthy lifestyle,¹³ especially due to excessive drinking, which is responsible for nearly 4% of all deaths (particularly, deaths from injuries, cancer, cardiovascular diseases and liver cirrhosis).¹⁴ In Lithuania the consumption of alcohol, calculated per person in the country (litters of absolute alcohol) has been growing from 2000 till 2007 and therefore can partly explain one of the mortality shocks.

It should be noted that changes in consumption of strong alcohol from 1994 to 2010 were different between genders: consumption slightly reduced among males, but increased among females (Statistics Lithuania). However consumption of beer increased significantly – in 2002 males consumed 1.35 times more beer than in 1994 (1.17 times more in 2010) and consumption among females increased almost 2.6 times (1.7 times more in 2010). Consumption of strong alcoholic beverages did not decline along with increased consumption of beer, meaning that total amount of consumed alcohol increased (Statistics Lithuania).

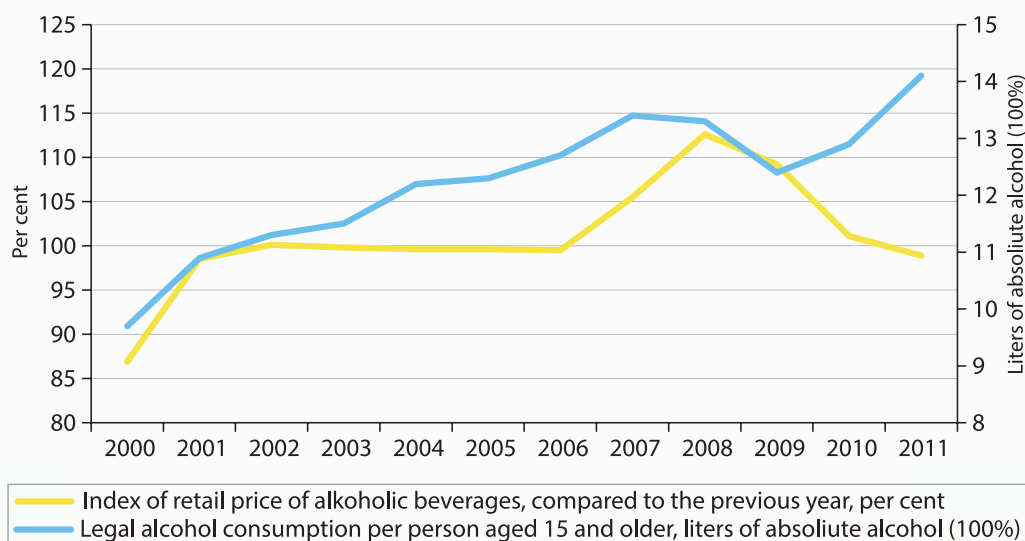
¹³ United Nations development programme. HIV, health and development. Strategy note 2012-2013. <http://www.undp.org/content/dam/undp/library/hiv/English/HIV%20Strategy%20Document%20-%20New.pdf>

¹⁴ http://www.who.int/mediacentre/news/releases/2011/alcohol_20110211/en/

The figure below illustrates changes in the amount of legally consumed alcohol depending on the price of alcohol and on excise duties. Growing consumption of alcohol was observed during the period 2001-2006 along with the growth of the economy and stable alcohol prices. As research of the ministry of Finance in Lithuania shows¹⁵, once excise duties were raised in January 2008 and then again in 2009, alcohol consumption started dropping. The rise in excise duties was a part of a large anti-drinking campaign which also included stricter regulation (such as limited working hours for selling alcohol, harsher fines). The Ministry suggested that higher excise duties helped reduce accidents at work and number traffic accidents. Once prices stopped rising to decline alcohol consumption has increased again (Statistics Lithuania).

Figure 30. Consumption of alcohol beverages and retail price index compared to previous year

Source: Statistics Lithuania

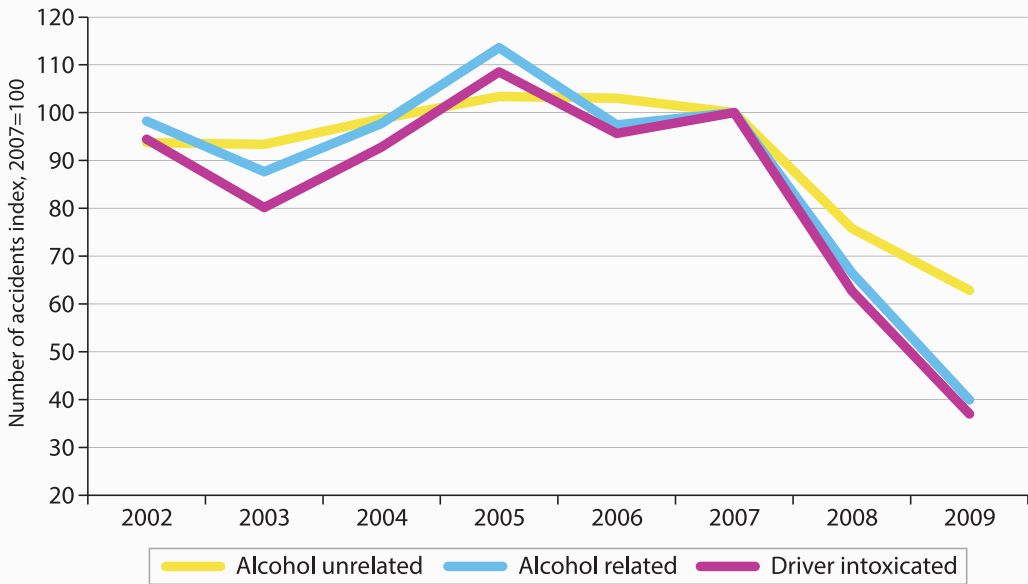


According to the research while accidents at work and on the road have decreased during the recession for groups that were identified as intoxicated, the number of casualties of those who were not intoxicated has decreased also. Specifically, when comparing 2008 to 2009 total amount of road accidents were reduced by 20 per cent, while the number of those who were intoxicated at the time of the accident reduced by 40 per cent. 2007 and 2008 differences are particularly interesting, since the recession officially began only in 2009, which means that the anti-drinking campaign should have been the main factor that affected drivers instead of the recession and its consequences. The below figure shows that the campaign was likely to help reduce the number of alcohol related accidents.

¹⁵ http://www.finmin.lt/web/finmin/koment/akcizai_tarifai

Figure 31. Index of accidents on the road

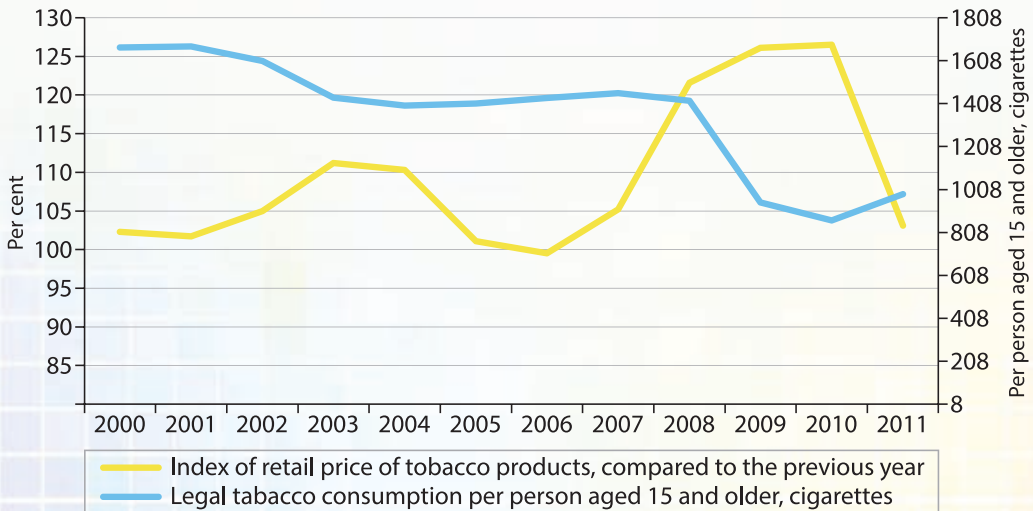
Source: Statistics Lithuania



Smoking and second-hand smoke causes serious cardiovascular and respiratory diseases, including coronary heart disease and lung cancer.¹⁶ Consumption of legal tobacco products in Lithuania, in contrary to alcohol beverages, gradually decreased during the period 2000-2011 and only in 2011 consumption of legal tobacco products slightly increased.

Figure 32. Consumption of tobacco products and retail price index compared to previous year

Source: Statistics Lithuania



¹⁶ <http://www.who.int/mediacentre/factsheets/fs339/en/>

It should be noted that number of smokers declined as a result of decrease in number of smokers males; however number of smokers among females practically remained unchanged. The figure below illustrates changes in the amount of tobacco consumption depending on the price of tobacco products. During the period 2001-2006 along with the growth of country economy but with stable prices of tobacco products there were no significant changes in consumption. As prices for tobacco products started to rise in 2007-2008, legal tobacco consumption declined.

2

CHAPTER

HEALTH SYSTEM

2.1. Overview of Lithuanian health system

The Lithuanian health system is a mixed, solidarity based, system. It is predominantly funded from the National Health Insurance Fund (NHIF) through a compulsory health insurance scheme which is supplemented by substantial state contributions to compensate the economically inactive population which amounts to about half of NHIF budget. In addition, the state budget covers long-term care at home, health administration, education and training, capital investment and public health services. The state health-care system is intended to serve the entire population (universal health coverage). All permanent residents and legally employed non-permanent residents to participate in the compulsory health insurance scheme, without an option to opt-out.¹⁷ In a middle of 2013 m. about 91 per cent of all Lithuanian population were covered by compulsory health insurance scheme.¹⁸

The *Ministry of Health* is a main regulator of health system by setting standards and requirements, licensing health-care providers and professionals and by approving capital investments. The Ministry of Health is responsible for organizing and provision of health care and public health services through national level institutions. The *municipalities* are responsible for organizing the provision of primary and social care, and for public health activities through public health bureaus at the local level. They also own the majority of polyclinics and small-to-medium sized hospitals.

The role of the private sector has been limited overall but it does play a substantial role in dental care, cosmetic surgery, psychological therapy, some outpatient specialties and primary care. Private expenditure, predominantly household expenditure, consist about a third of all health expenditure, mostly as co-payments for pharmaceuticals and dental care. The role of voluntary health insurance is negligible.¹⁹

Health services purchasing is based on a contractual relationship with providers as well as some financial incentives. Primary care is financed predominantly through capitation, and a smaller share of fee-for-service and performance-related payments, outpatient and inpatient care – mainly through case payment and through fee for service for diagnostic tests.

Primary care delivery and gatekeeping function is provided by a general practitioner/family doctor or a primary care team. *Emergency care* during working hours is usually delivered by primary care providers, supported by ambulance services available all over Lithuania. Alternatively, or during out-of-hours for family doctor service, it is provided by emergency departments of hospitals. *Specialist outpatient care* in Lithuania is delivered through outpatient departments of hospitals or polyclinics as separate legal entities, as well as through private providers.

The number of pharmacies since 1993 increased substantially and dominantly is privately owned. Over the years, availability of and access to pharmaceuticals has increased significantly too, but the level of reimbursement for pharmaceuticals in Lithuania remains low, and access to innovative medicines has been shown to be lacking.²⁰

¹⁷ Murauskiene L., Janoniene R., Veniute M., van Ginneken E., Karanikolos M. Lithuania: health system review. Health Systems in Transition, 2013; 15(2):1-150.

¹⁸ <http://www.vlk.lt/info/item/id/2143>

¹⁹ Murauskiene L., Janoniene R., Veniute M., van Ginneken E., Karanikolos M. Lithuania: health system review. Health Systems in Transition, 2013; 15(2):1-150.

²⁰ Murauskiene L., Janoniene R., Veniute M., van Ginneken E., Karanikolos M. Lithuania: health system review. Health Systems in Transition, 2013; 15(2):1-150.

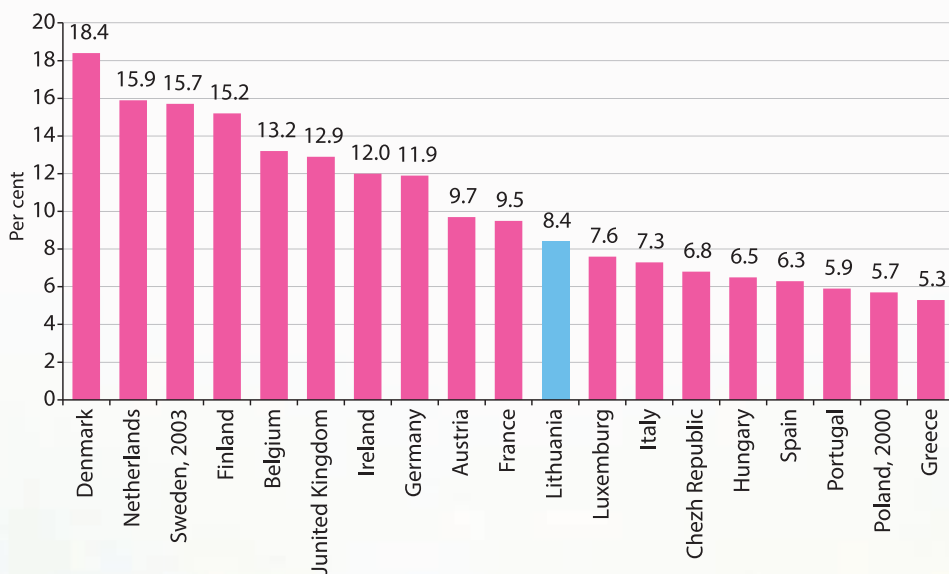
2.2. Health system resources and provision of services

Personnel of health and social sector

Number of persons employed in health and social sector²¹ in Lithuania is quite high and is still growing as in EU. The part of persons employed in health and social sectors has increased from 6.2% of all employed people since 1995 to 8.8% in 2010. More than 10% of all employed persons are involved in health and social sectors in OECD and in many EU countries and this percentage constantly grows up. Financial crisis of 2008-2009 has almost no impact on the number of persons employed in health and social sectors, in contradistinction to the number of people employed in other sectors of economy. Based on data for 2009, the biggest number of employed people in these sectors was in Denmark (18.4%), Netherlands (15.9%), Sweden (15.7%), Finland (15.2%), Belgium (13.2%), Junited Kingdom (12.9%), Ireland (12.0%), Germany (11.9%), Austria (9.7%), France (9.5%), Lithuania (8.4%), Luxembourg (7.6%), Italy (7.3%), Chezh Republic (6.8%), Hungary (6.5%), Spain (6.3%), Portugal (5.9%), Poland, 2000 (5.7%) and the smallest in Greece (5.3%).²²

Figure 33. Workers in the sectors of health and social care, per cent from all employed persons, 2009

Source: OECD, Statistics Lithuania



As it was shown in the figure below, percentage of persons in health care sector in 2011 was bigger than 7% of all employed persons, and this number was largely increasing since 2007. A similar share of population works in construction as well as in transportation and storage sector.

²¹ Human health care and social care activities as defined by Statistics Lithuania.

²² OECD (2011), Health at a Glance 2011: OECD Indicators, OECD Publishing. http://dx.doi.org/10.1787/health_glance-2011-en

Figure 34. Employment by sector as a share of total employed in Lithuania, 2007-2011, per cent

Source: Statistics Lithuania



Personnel in health care sector

Based on the data of Health Information Centre of Hygiene Institute (HISIC), there were more than 46.8 thousand of medicine professionals in Lithuania (53.5 thousand in 2000)²³. In 2011 there were almost 38.6 thousand of practising medical personnel (physicians, odontologists and nurses only).

For each resident there were 1.39 times more physicians in 1990, to compare with EU countries average. Number of physicians in Lithuania stabilised after 1990 and declined slightly during the period 2000-2004, meanwhile number of physicians increased in EU countries. Based on WHO data, number of physicians in 2009 per 100 thousand population in Lithuania was higher than average number in European Union (more physicians were in Greece, Austria, Portugal, Spain, Sweden Bulgaria only).

According to statistics presented by HISIC the biggest increase (calculated per 100 thousand population) during the period 2000-2010 was observed in number of family physicians (about 2.6 times), surgeons (number of child surgeons, orthopaedists-traumatologists increased by about 25%) and anaesthesiologists (number increased by more than 30%). Number of psychiatrists increased by about 12% and about 8% augmentation was observed in number of professionals of physical medicine and rehabilitation.

Despite the declarations and evidences obtained in the studies confirming the importance of family physicians and their efficacy in terms of value for money²⁴, average percentage of family physicians varies greatly among EU27 as well as in OECD countries. France, Austria, Belgium and United Kingdom have more family physicians to compare with average number in EU27 countries; however the number of family physicians in Germany, Sweden and Ireland is less

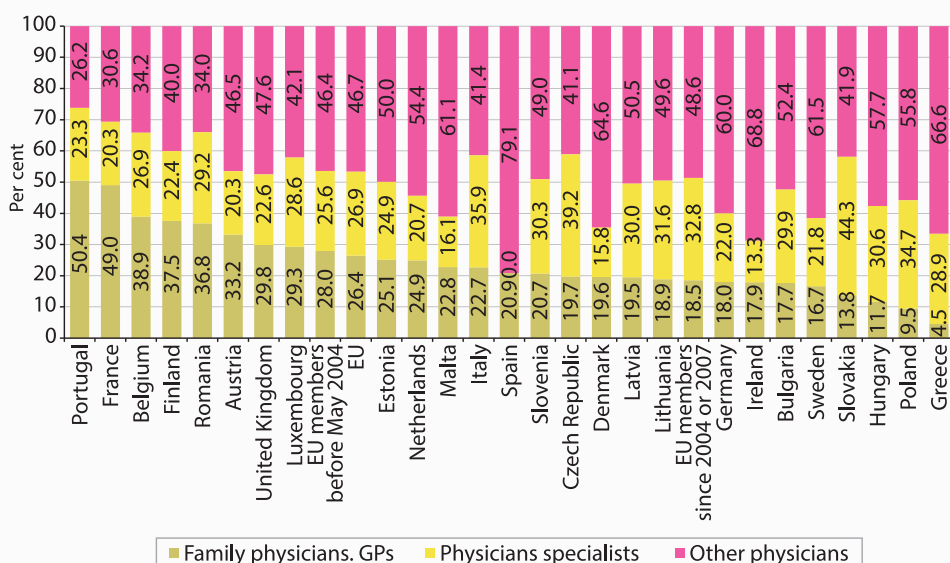
²³ Physicians, odontologists, nursing professionals, physical medicine and rehabilitation, oral hygiene, laboratory diagnostics professionals, dieticians and other professionals with higher medical education.

²⁴ There have already been studies carried out demonstrating strong statistical correlation between the level of primary health care development and lower mortality rates in population (Primary Care Attributes Linked With Patient Mortality Rates, <http://www.medscape.org/viewarticle/756947>).

than average number in EU12 countries. The percentage of family physicians in Lithuania is very close to average percentage in EU12 countries.

Figure 35. Distribution of family physicians and other physicians, per cent

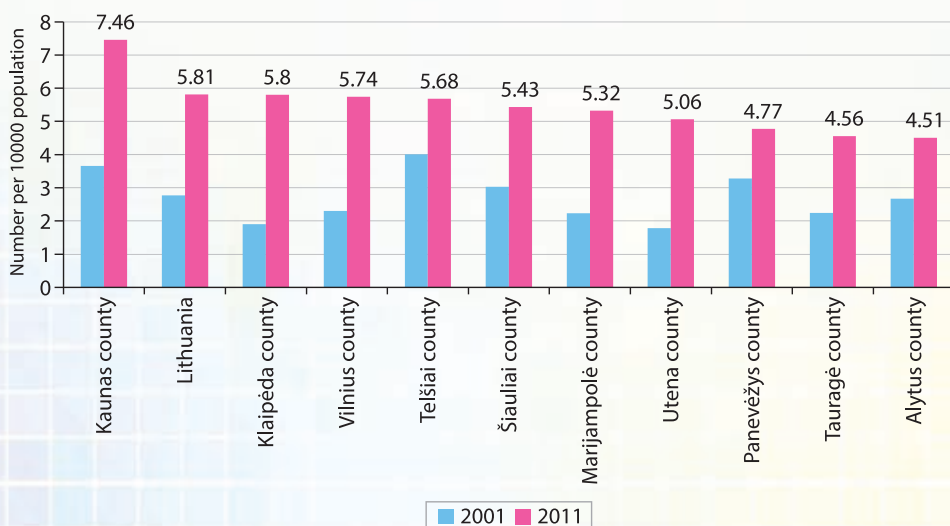
Source: OECD, HISIC



Regional distribution (by counties) of family physicians in Lithuania is quite uneven. Number of family physicians increased during the period 2001-2011, however differences in the number of physicians among the counties still remain (for instance, number of family physicians in Kaunas County is 1.65 times higher than in Alytus County).

Figure 36. Number of family physicians per 10000 population

Source: HISIC

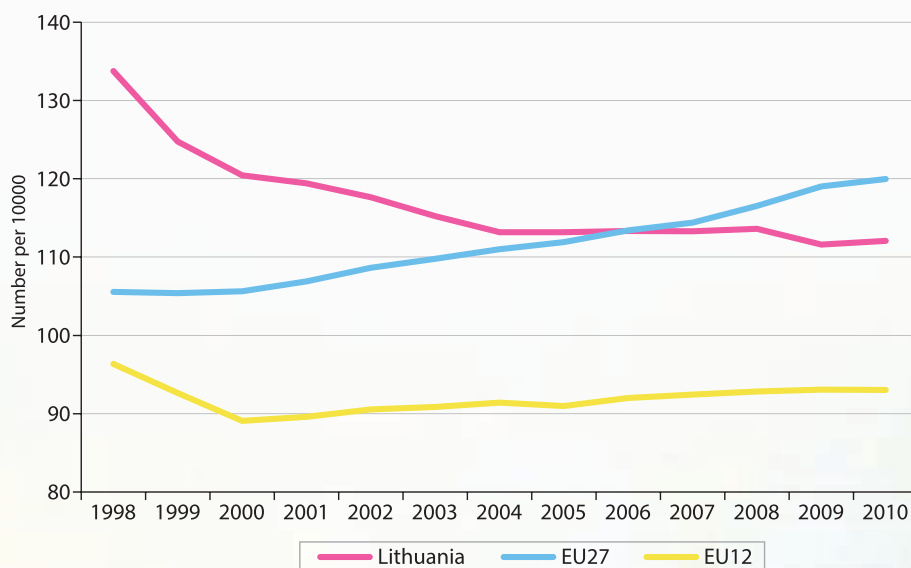


The number of nurses in Lithuania started to decline in 1990, though in the majority of EU countries number of nurses increased. Number of nurses employed in the health care system of Lithuania per 100 thousand population decreased by about 23% during the period 1992-2010 and currently is by about 15% lower to compare with the respective average index of EU countries, at the same time nurses in 2011 accounted for the biggest percentage of all workers of health sector reaching 52% of all workers. In 2010, the number of nurses graduated from the schools per 100 thousand population was almost 1.8 times less to compare with the respective average index of EU countries. Based on WHO data there were in average about 2.5 nurses for one physician in EU countries during the period 2000-2010, meanwhile in Lithuania the nurse / physician ratio was 2.1-1.9 at the same period. Average number of nurses for one physician in 2009 in OECD countries reached 2.8²⁵. It was stated in the World Bank Report for 2009 that minimal nurse / physician ration should be at least 2:1, and ratio 4:1 is considered as most effective in terms of value for money.²⁶ With an aging population the need for nursing services and nursing personnel should increase further.

Number of physicians per 100 thousand population has remained almost the same since 1999, however due to significantly reduced number of nurses in Lithuania the total number of medical personnel per 100 thousand population in 2004 became lower to compare with the respective average index of EU countries.

Figure 37. Number of physicians and nurses per 10,000 population

Source: WHO



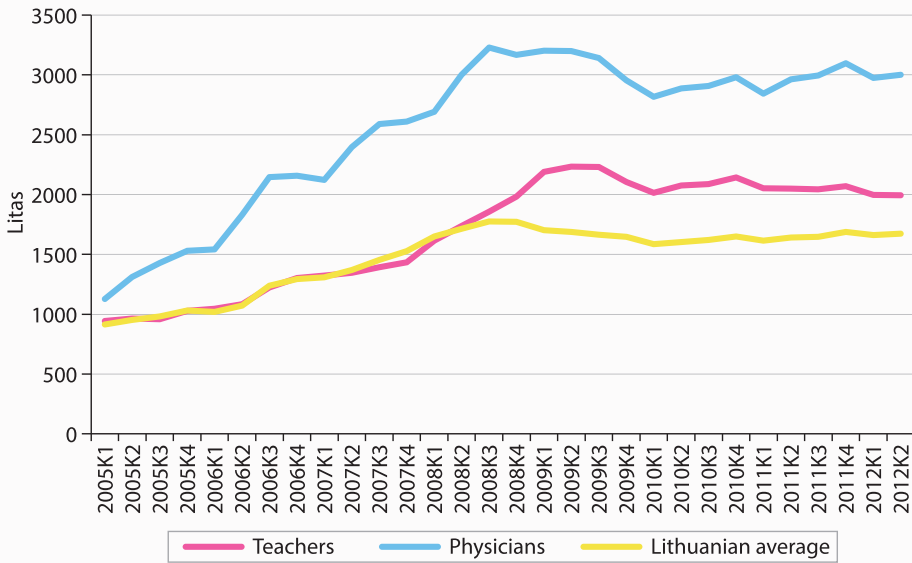
The average wages of medical personnel is above Lithuanian average. Comparison of wage growth rates among the employees of the country and medical professionals during the period 2003-2007 leads to the conclusion that augmentation of average monthly wage of physicians was faster than in other economy areas.

²⁵ OECD (2011), Health at a Glance 2011: OECD Indicators, OECD Publishing. http://dx.doi.org/10.1787/health_glance-2011-en

²⁶ Lithuania. Social Sectors Public Expenditure Review. Prepared for the Republic of Lithuania by the World Bank Group, May, 2009. Eastern Europe and Central Asia region, Human Development Department.

Figure 38. Average monthly wage, in Litass (net)

Source: Statistics Lithuania



High number of medicine professionals graduating from education institutions allows maintaining sufficient number of medicine personnel in Lithuania despite quite high level of emigration among medicine workers and relatively big proportion of older medicine professionals.

The prognosis regarding the demands for physicians in the future is rather complicated and is related to the population ageing. This results in increased need in health care services and growing productivity of medical professionals, new technologies for treatment and diagnostics as well as rather unclear perspective of the economy development in Lithuania. Based on controversial assessments, demand for medical professionals may increase or decrease.

Based on The National Health Insurance Fund data in 2010 personal health care establishments for wages and social insurance contributions spent 2105.2 million Litass or 66% of all expenses.

Aiming to reduce shortage of physicians and to ensure good accessibility of health care services functions of nurses in some countries were expanded. The studies carried out in USA, Canada and United Kingdom demonstrated that patients' are rather satisfied by such services and costs remain the same or decline²⁷.

Hospital beds and hospital discharges

Despite the reduction of number of hospital beds and shortened duration of hospitalisation in Lithuania, in-patient care services still account for big part of total amount of health care services²⁸. Number of hospitalisations (hospitalised patients) still remains rather high (at the level of the year 2002) though total amount of bed-days go into decline. It may be suggested that

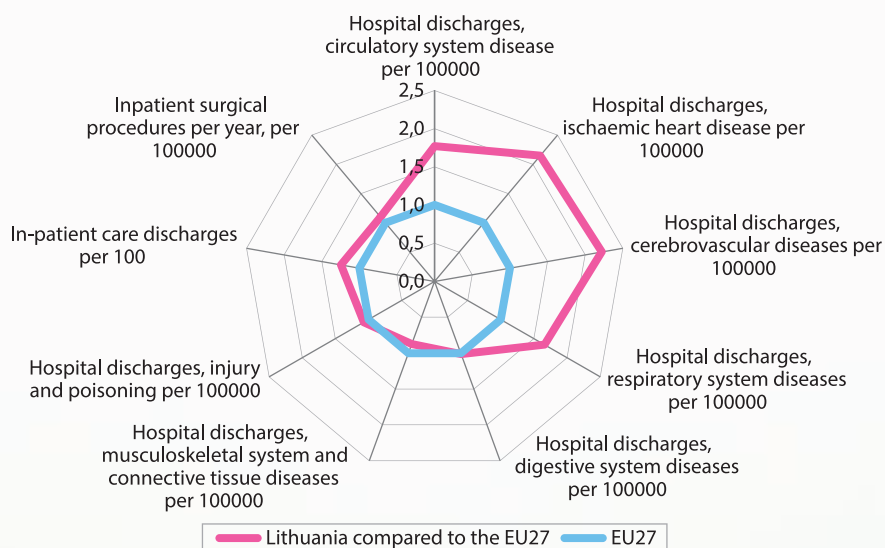
²⁷ OECD (2011), Health at a Glance 2011: OECD Indicators, OECD Publishing. http://dx.doi.org/10.1787/health_glance-2011-en

²⁸ Lithuania. Social Sectors Public Expenditure Review. Prepared for the Republic of Lithuania by the World Bank Group, May, 2009. Eastern Europe and Central Asia Region, Human Development Department.

increased costs for in-patient (hospitals) care in 2004 were associated with the rise in prices of resources and wages rather than changes in amount of services (number of bed-days). It should be noted, however, that policy for the reduction in number of hospitalisation cases should not be implemented equally in all regions and should be considered in terms of morbidity structure by groups of diseases. Analysis revealed significant differences in number of hospitalised and discharged patients in Lithuania and EU27 countries in 2009 by the groups of diseases. For instance, in Lithuania number of hospitalisations for cerebrovascular diseases was almost 2.2 times higher, for heart ischemic disease – 2.15 times higher, for respiratory system diseases – 1.66 times higher to compare with EU27 countries, and number of hospitalisations for traumas and digestive system diseases was close to average index of EU27 countries. It should be noted that number of hospitalisations due to diseases of connective tissue and musculoskeletal system was by about 13% lower than the respective average index of EU27 countries.

Figure 39. Comparison of the number of in-patient services available in Lithuania and in EU 27 countries

Source: WHO, SEC calculations

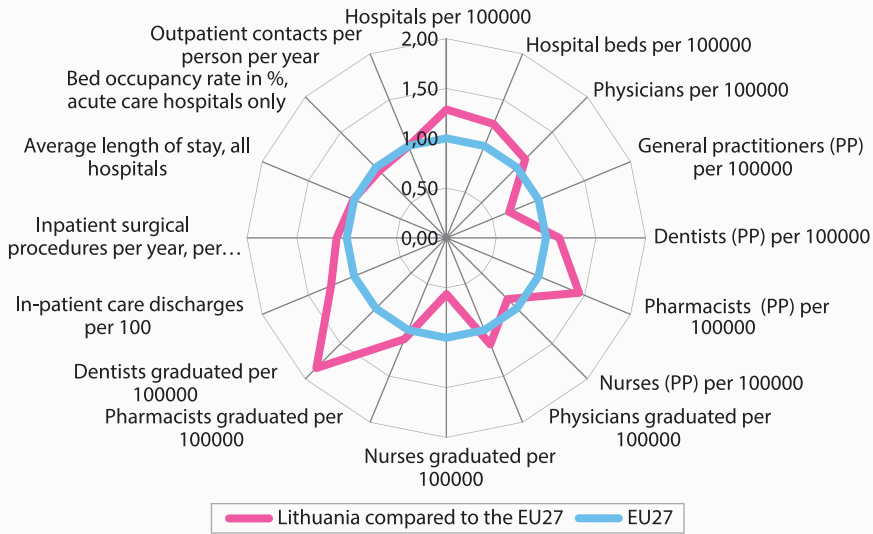


The comparison of human resources in health sectors of Lithuania and other EU countries, the figure below illustrates the multiple-fold difference between the rates of Lithuania and average indexes of EU countries. The average index in 2010 of EU countries was equated to one (blue circle in the centre of figure) and respective differences of the indexes of Lithuania (in times) are represented by red line.

Number of hospitals and hospital beds in Lithuania in 2010 (675.12/100 thousand population) was still significantly higher than the respective average index of EU27 countries (545.46/100 thousand population), however the indexes of hospital functioning – average hospitalisation duration and bed occupation corresponded to the average index of EU27 countries.

Figure 40. Comparison of health system resources and functioning in Lithuania and in EU27 countries. EU27 = 1

Source: WHO, SEC calculations



The figure shows that Lithuania has more odontologists and pharmacists to compare with the average numbers in EU countries, number of family physicians and nurses is slightly less, however number of graduated nurses is significantly below the EU level. Having in mind that we lack young people studying nursing, augmentation of gap between the number of nursing personnel in Lithuania and average numbers of those in EU countries can be expected.

2.3. Finances of health system

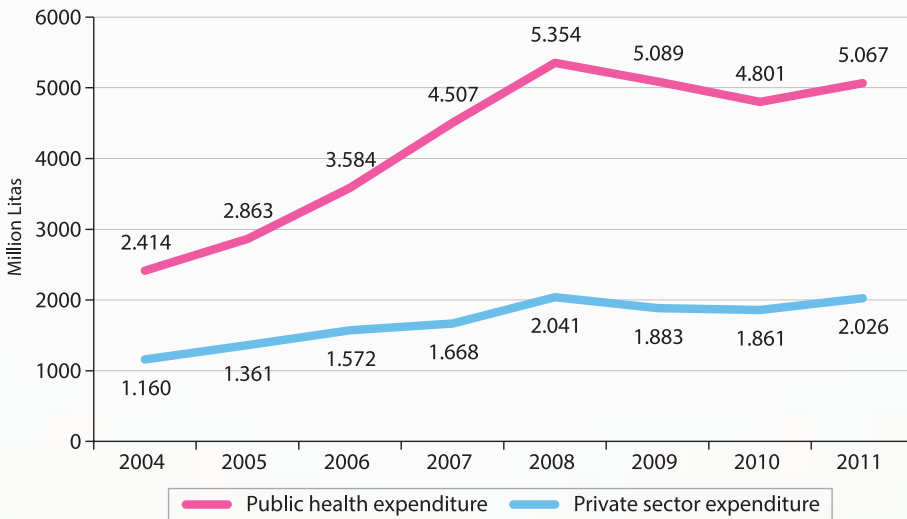
Health sector according to the national health accounts

Total health financing and financing sources

According to the System of Health Accounts (SHA)²⁹ total health care expenses consists of final consumption costs of current health care goods and services and general capital formation expenses of health care providers.³⁰ As it can be seen in the figures below, both private and public health expenses were growing and reached 7.4 billion Litass in 2008 and then slightly fell in 2009-2010. It should be noted, that the public sector (general government) was more responsible for both the growth and fall in expenditures.

Figure 41. Total health expenses by financing sources

Source: Statistics Lithuania



Undoubtedly, the economic crisis had a negative effect on health expenditures, but a large fall was prevented due to a stabilizing mechanism. First, revenues for state insured persons, as inscribed in Lithuanian legislation, were tied to wages of preceding years, when economy and wages were still rising. Second, part of health expenditures were financed by previously accumulated reserve of the State Patient Fund. Third, additional financing was provided from the State budget to compensate shortfalls.³¹ Therefore, it shows that the Lithuanian health system was able to provide relatively stable source of finance during turbulent economic times, which is one of the key functions of the system.

A look at total health expenditures as per cent of GDP shows that a stumbling economy combined with a relatively stable public finances resulted in an increase in relative health

²⁹ OECD, 2000. A system of Health Accounts. The publication was prepared by OECD – Organisation for Economic Co-operation and Development).

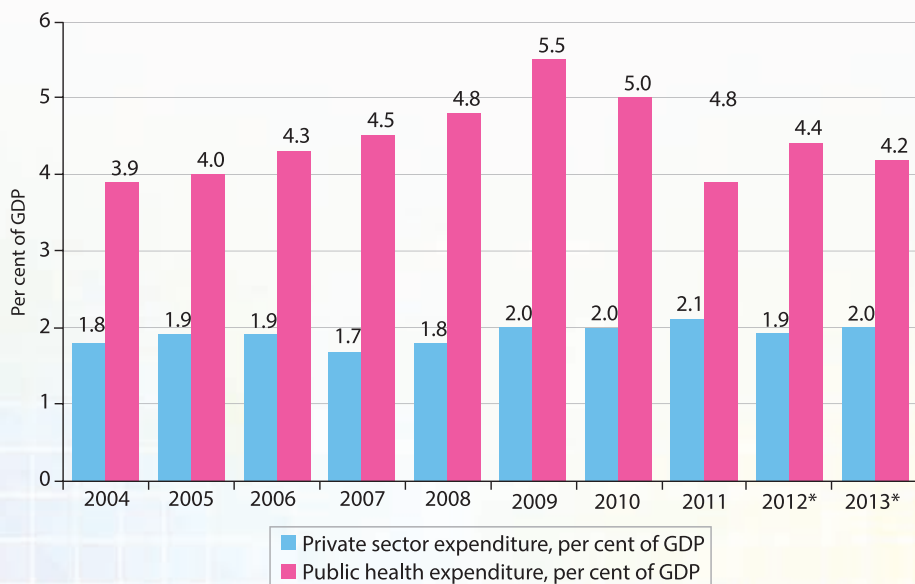
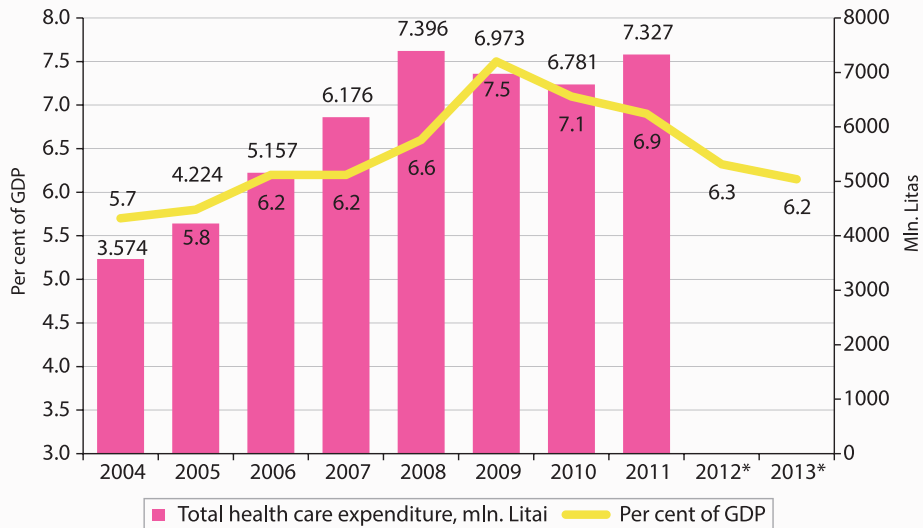
³⁰ The expenses of capital formation are assigned to the group of health-related functions.

³¹ Cerniauskas, G. (2010). Lietuvos sveikatos sektorius amžų sandūroje (Lithuanian health care sector in the turn of the Century). Vilnius: UAB Sveikatos ekonomikos centras.

expenditure. The growth rate of percentage from GDP allocated to health expenses during the period 2007-2009 exceeded 1.3% – largest increase in EU after the Netherlands – and in 2009 reached a historic high of 7.5% of nations yearly income went to finance healthcare. However, once the crisis subsided and the economy started growing extra state revenues were not directed to healthcare and as a result the health expenditure ratio has (and is still expected to) fall to 2006 relative levels.

Figure 42. Total health expenses

Source: Statistics Lithuania

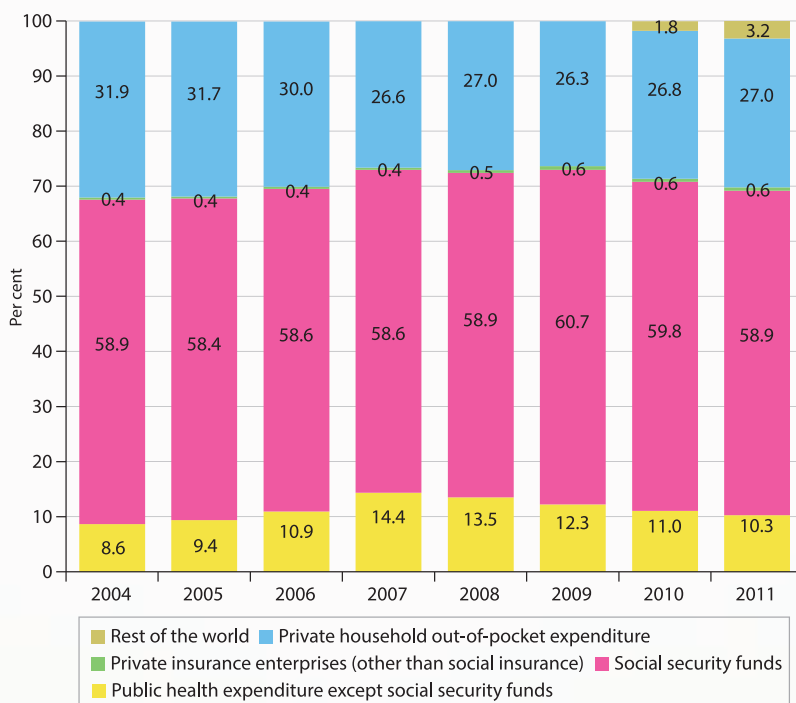


* – preliminary SEC calculations

It is interesting to inspect the public-private dimension further. The public domain of health care activities are financed in Lithuania by the state and municipal budgets, Compulsory Health Insurance Fund, other sources of public financing. The private domain consists of households, supplementary voluntary health insurance and other financing sources. As can be seen below, social security funds make up the largest share of public finances while households – private funding. Additionally, since 2010 European Structural Funds (under the heading of rest of the world) contribute to an increasingly larger share of health financing (3.2%).

Figure 43. Health care expenses by the financing sources (detailed), per cent

Source: Statistics Lithuania

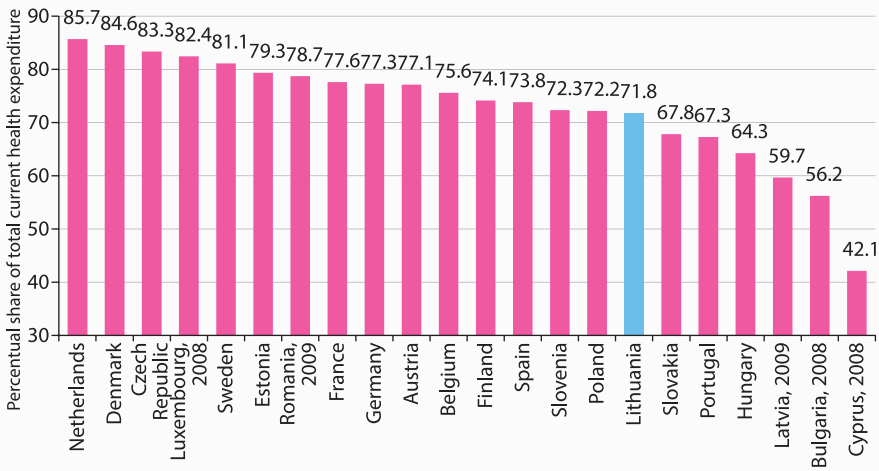


There were also changes in the structure of expenses in terms of financing sources. Direct health expenses of households dropped down to compare with the year 2004, and expenses of state budget and Compulsory Health Insurance Fund changed little. Expenses of additional voluntary health insurance remain almost at the same level and accounted only for 0.6% of all health expenses in 2011.

Eurostat data also allows for a cross country view of public financing. In Lithuania, public health financing reached 71.2% from all health expenses in 2008 and about 73% – in 2009-2011. The percentage of public financing of health sector in 2010 was similar to that in Poland and Slovenia.

Figure 44. Public health expenses, per cent of current health expenses, 2010

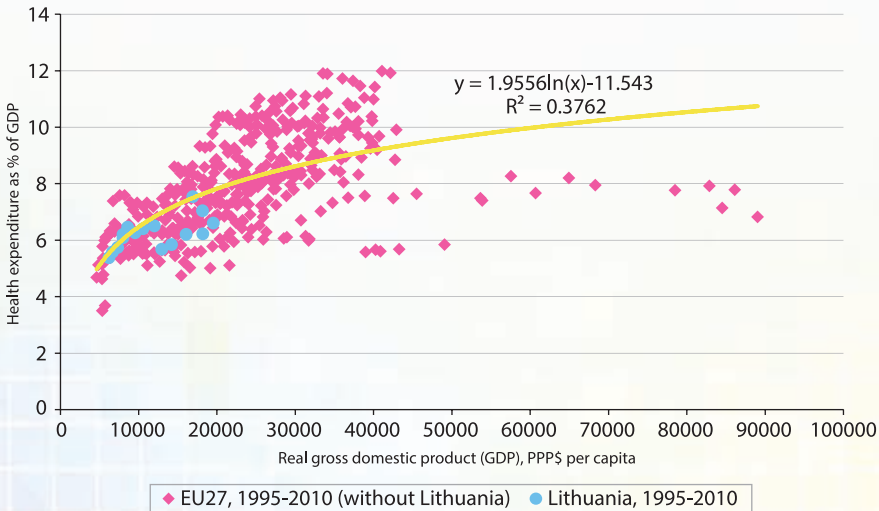
Source: Eurostat



Additionally, Eurostat data we may derive three conclusions. First, as countries get richer, they tend to increase financing in health care at the expense of the rest of the economy. The picture below demonstrates correlations between income (GDP) and *total health expenses*. Notice, that the trend is logarithmic which means that expenditure is increased at a slower rate the faster it develops. The Lithuanian trend fell below the EU average trend for a significant part of 1995-2010. This means that either government or private expenditures should increase in order to meet the European average.

Figure 45. Correlation between GDP and health expenses

Source: SEC calculations

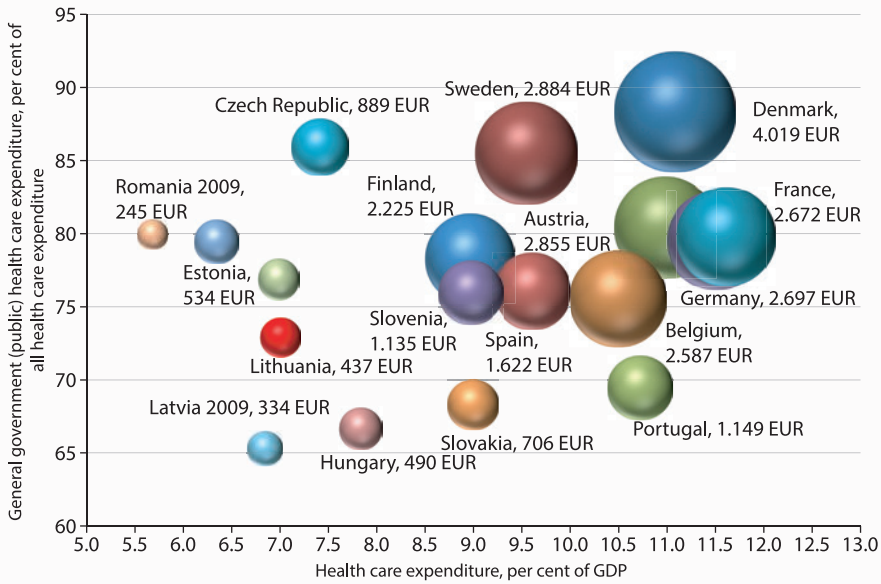


Second conclusion is that public health care financing increases as the economy rises. The below figure generalizes health financing in EU. As countries get more advanced they spend a larger share of income (as per cent of GDP) on health care and a greater share of expenses is

financed by the state. Lithuania resembles East European states, the share of state financing of health care is one of the lowest.

Figure 46. Health expenses in 2010

Source: Eurostat data, prepared by SEC

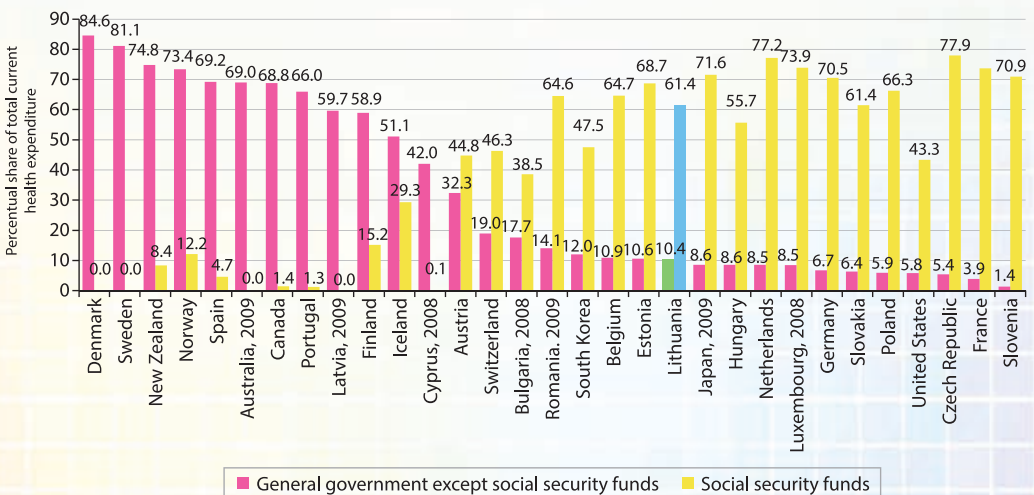


Note. Bubble size represents the public health expenditure per capita in EUR

Third conclusion is that there is a lack of EU consensus on the structure of public financing. For example EU countries such as Denmark, Sweden, Finland or UK are financed from general government budget, others, for example, Germany, Netherlands, Austria or France are financed from social security funds. As health care system in Lithuania largely relies on National Health Insurance Fund financing, Lithuania belongs to the latter group.

Figure 47. Public (governmental sector) health expenses, per cent from all health expenses

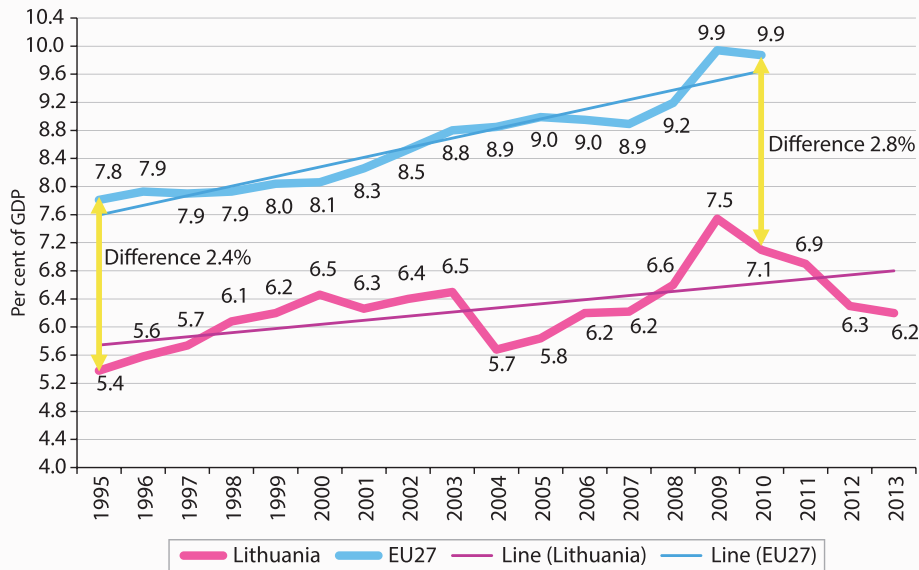
Source: Eurostat



Higher public health care spending in line with EU historic financing trends should increase health care financing in Lithuania and improve population health outcomes. Percentage of GDP in Lithuania for health expenses during the period 1995-2011 was less, if to compare to EU27 average, by 2,4% in year 1995 and the difference increased to 2,8% in year 2010.

Figure 48. All health expenses, percentage of GDP

Source: WHO, SEC calculations



Health financing according to health care functions

The system of health accounts (SHA)³² compiled by Eurostat allows analysing the financing related to both health care functions and health-related functions and to highlight intersectoral aspects of health care as a general issue of social and economy policy.

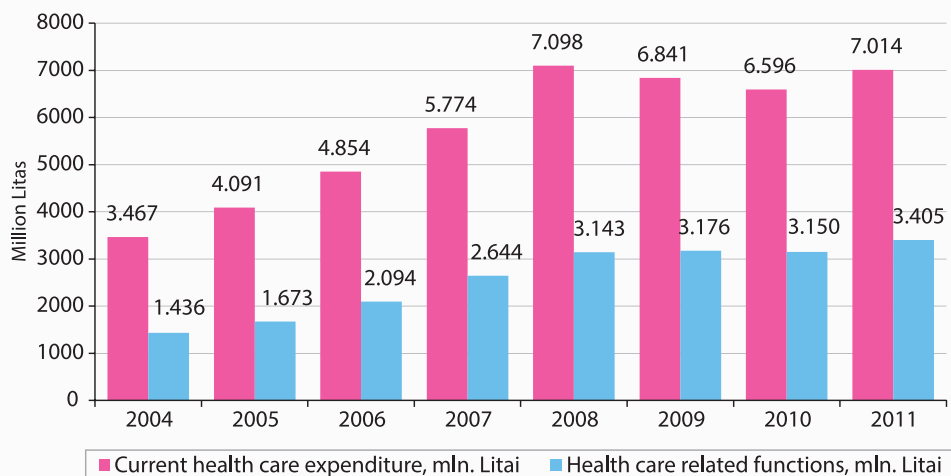
The figure below shows that health expenses in 2011 overran 7 billion Litass, and expenses for health care related functions³³, which include environmental health expenses, were higher than 3.4 billion Litass.

³² OECD, 2000. A system of Health Accounts. The publication was prepared by OECD – Organisation for Economic Co-operation and Development).

³³ Health-related functions include: capital formation of the establishments rendering health care services (investments); education and training of health care personnel, scientific research in health care and applied science; control of food hygiene and drinking water; environmental health; delivery and administration of social services for patients and disabled persons, administration and payment of health-related allowances.

Figure 49. Health expenses and expenses for health care related functions

Source: Statistics Lithuania



Based on Eurostat data about 5% of all health-related functions expenses, after subtracting capital formation (investment) expenses, during the period 2004-2010 were for education and training of personnel. There was a two-fold increase in the monetary and in-kind allowances administrated by the Lithuanian ministry of Social Security and Labour and Social Insurance Fund (Sodra) during this period and accounted for more than 90% of all expenses in this group. Environmental health expenditure constituted about 0.5 per cent in year 2010.

Health care functions related to the final consumption of goods and services and aimed to reach health care goals include personal health care services, that are delivered directly to individuals, and collective health care services related to traditional tasks of public health, i.e. health promotion and disease prevention³⁴. Personal health care services include: treatment services, rehabilitation, (long-term) nursing services, supporting (ancillary) services and medical goods for out-patients, including means for patient's self-treatment and other goods used for household, both with prescription and over-the counter.

Based on Eurostat data percentage of GDP allocated to health care services in 2010 in Lithuania was bigger to compare with Estonia and Latvia. However expenses for investments (capital formation) in Lithuania were smallest almost among all countries of comparison (except in Estonia) presented below.

³⁴ Including establishment of standards and control of their implementation, health care administration and health insurance.

Figure 50. Health expenses, percentage of GDP, Eurostat, 2010

Source: Eurostat

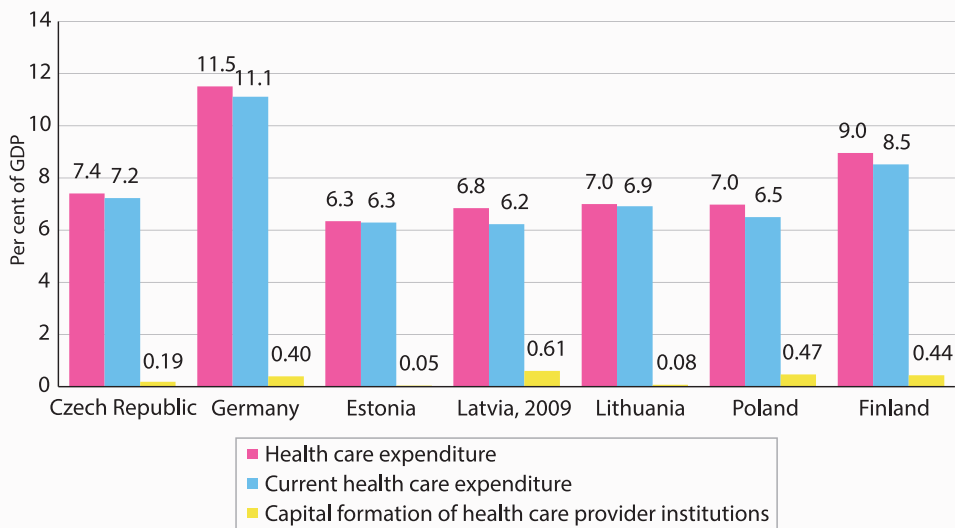
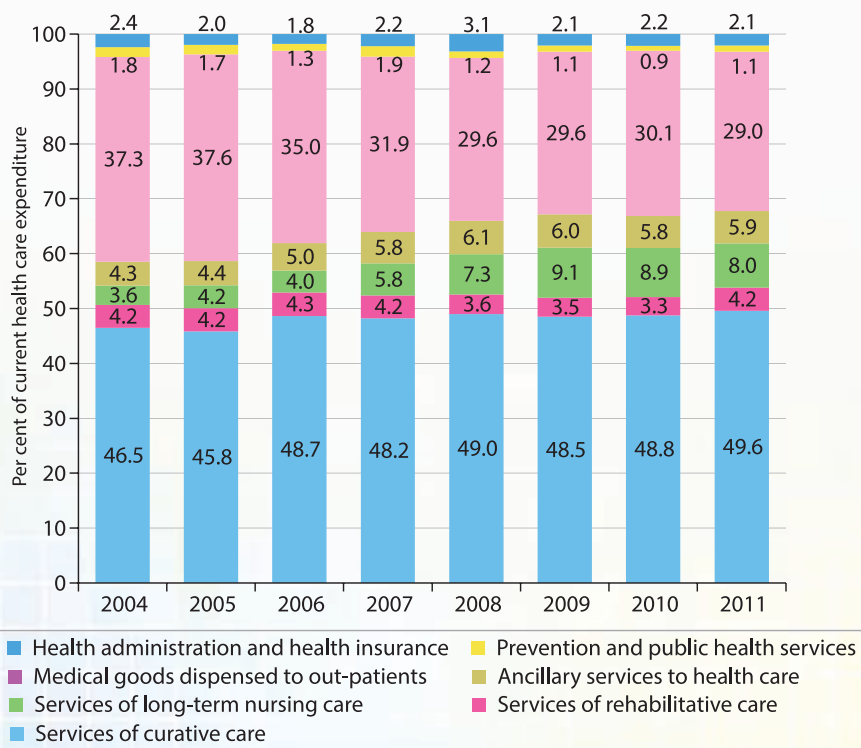
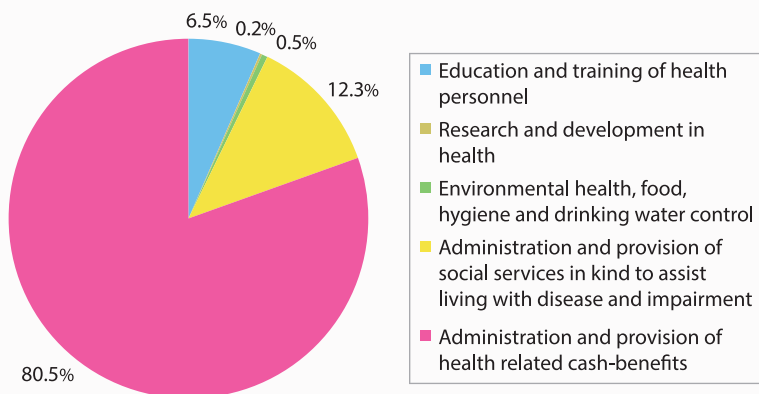


Figure 51. Structure of current health and related expenses

Source: Statistics Lithuania





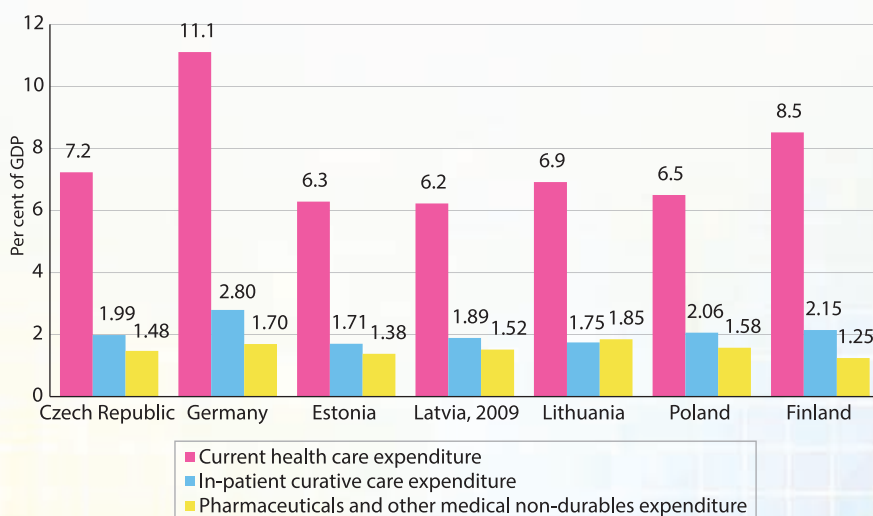
Note. Structure of health related expenses in 2011

There were little changes in the structure of health expenditures. Current health expenses (capital formation / investment expenses not included) in 2004-2011 – expenses for prevention and public health, for medical goods intended for out-patients and rehabilitation care reduced however there was an increase in expenses for supportive health care and long-term nursing services. Changes of expenses for services of curative care were relatively small.

Structure of functions assigned to prevention and public health should be noted. Based on Eurostat data there was a minor increase in expenses for health care services at school, about 3-fold increase in expenses for prevention of communicable diseases and more than 25-fold increase for prevention of non-communicable diseases. However the sum of expenses allocated for occupational health services remained almost the same.

Figure 52. Current health expenses, per cent of GDP, 2010 (current health, inpatient and pharmaceutical expenditures)

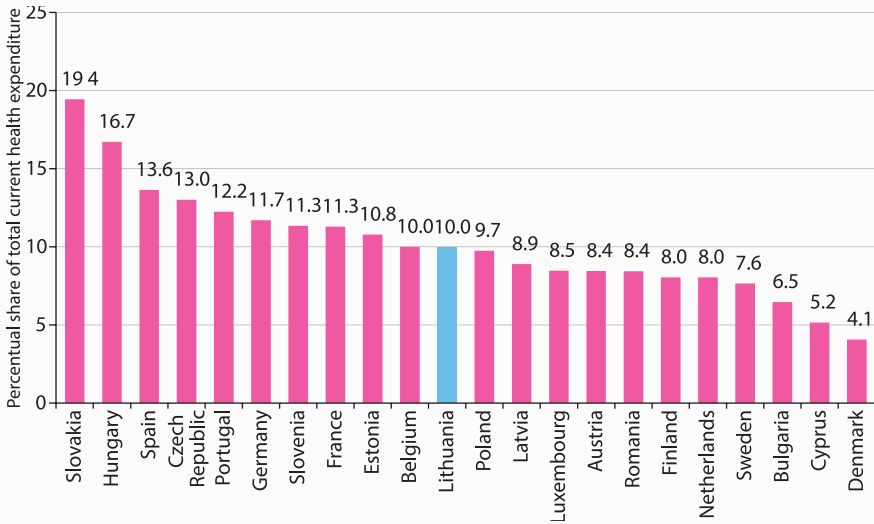
Source: Eurostat



Public expenses allocated for pharmaceuticals and other medical non-durables were nearly 10% from all current health expenses in 2010. The percentage public financing of pharmaceuticals in 2010 was similar to that in Poland and Belgium.

Figure 53. Public (governmental sector) expenses for pharmaceuticals and other medical non-durables, per cent of current health expenses, 2010

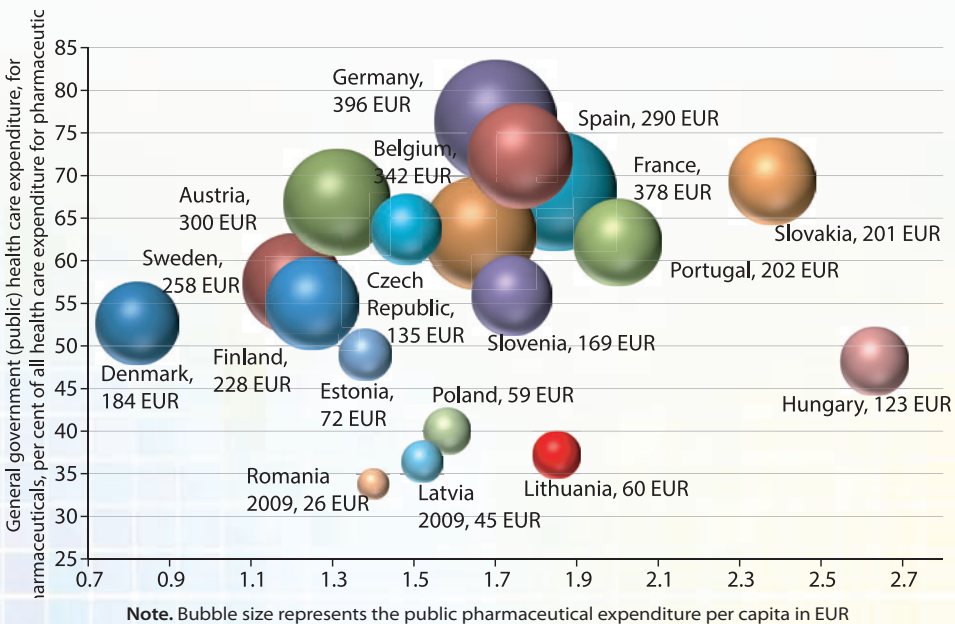
Source: Eurostat



The situation for consumption of pharmaceuticals in Europe is similar as is total health consumption, but Lithuania's pharmaceutical consumption is relatively higher largely because of very high private consumption.

Figure 54. Expenses for pharmaceuticals and other medical non-durables, 2010

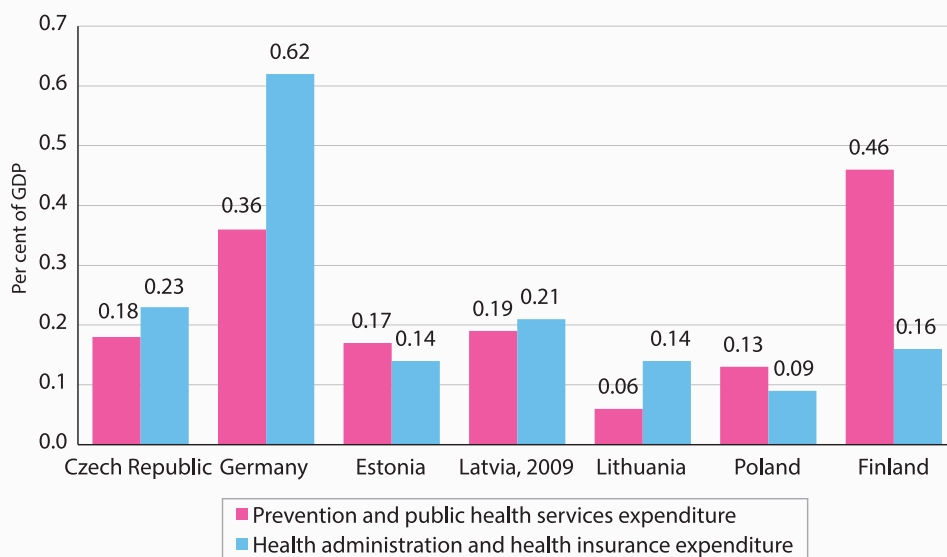
Source: Eurostat data, prepared by SEC



Based on Eurostat data Lithuania and Latvia in 2010 allocated the smallest amount of money (percentage from GDP, year 2009) for prevention and public health among all countries of comparison; to compare with Lithuania less expenditures on health system administration (percentage from GDP) were allocated only in Poland.

Figure 55. Current health expenses, percentage of GDP, 2010 (prevention and public health, administration and health insurance expenditures)

Source: Eurostat



Health financing according to health care providers

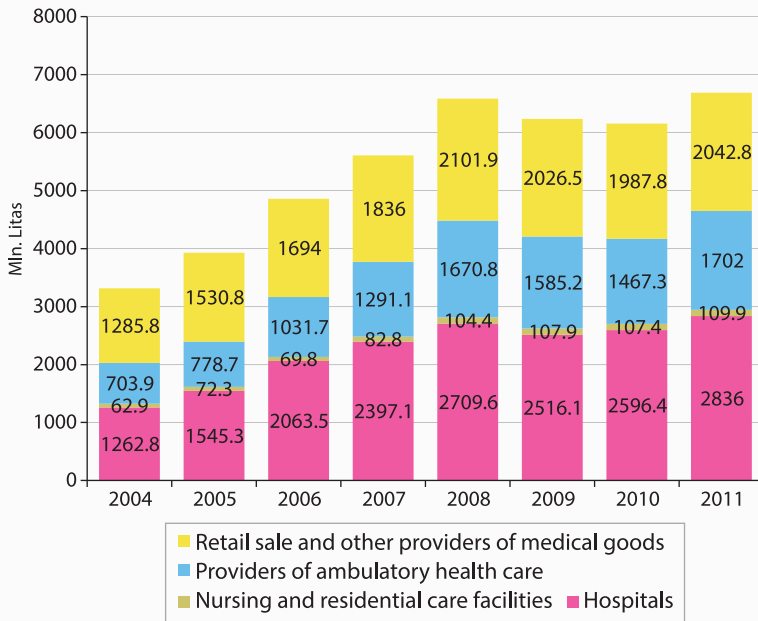
Health accounts provider classification comprises both primary producers of health care and secondary producers. The main activity performed by primary producers is health care services (for example, hospitals or doctors' offices). For secondary producers health care services are not main, but as secondary activity (for example, residential care institutions which provide mainly social services). Primary producers of health care group cover all establishments rendering health care services – including both establishments belonging to the National Health Care System of Lithuania (NHCS)³⁵ and licensed private suppliers of health care services³⁶.

³⁵ State and municipal budgetary and public establishments of personal and public health, granted with the licences for health care or pharmacy activities, enterprises and other enterprises as well as institutions, concluding agreements in compliance with laws in force with Patient Sick Funds or other contracting authorities of NHSC activities – during the period of validity of such agreements (according to the Law on Health System).

³⁶ Licensed private suppliers of health care services, not having agreements with Patient Sick Funds or other contracting authorities of NHSC activities.

Figure 56. Health care expenses by providers

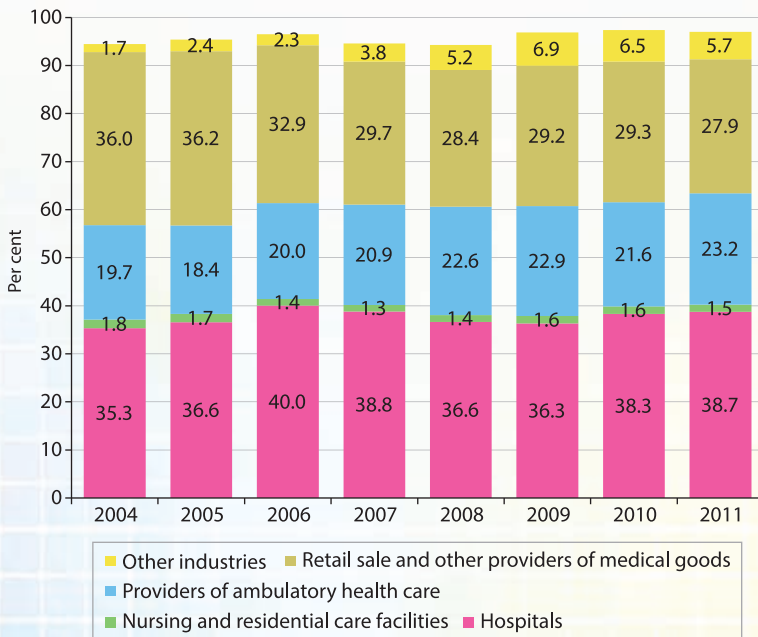
Source: Statistics Lithuania



As it is shown in figures, the expenses by all groups of service providers increased during the period 2004-2008. They went into decline during the period 2009-2010 in almost all groups and have started to grow since 2011.

Figure 57. Health expenses by the providers, percentage of health care expenses

Source: Statistics Lithuania



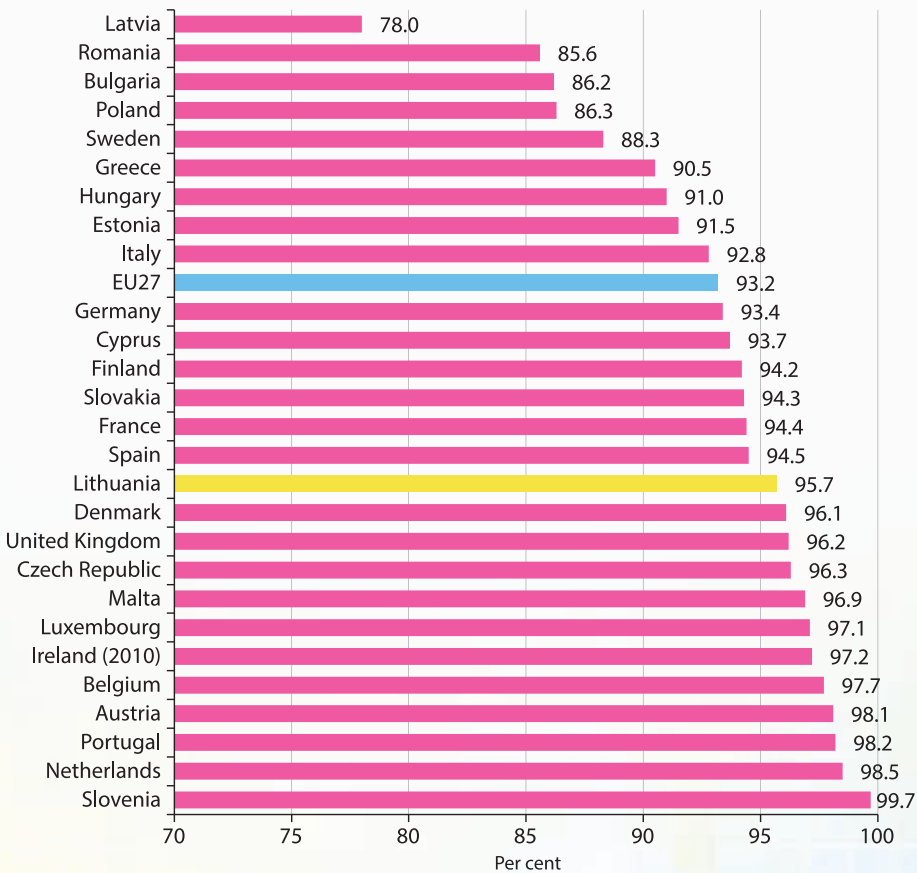
2.4. Accessibility of health services according to unmet health care needs and health consumer index

Different approaches can be used to assess accessibility of health care services: carrying out interviews of residents, analysing distribution of health system resources or statistics of rendered services. In this section the evaluation of accessibility is limited to a discussion of unmet health care needs and the Health Consumer Index.

From EU-SILC³⁷ survey results presented in Eurostat database the share of the population perceiving an unmet need for medical examination or treatment may be presented.

Figure 58. No unmet health care needs to declare, 2011

Source: Eurostat



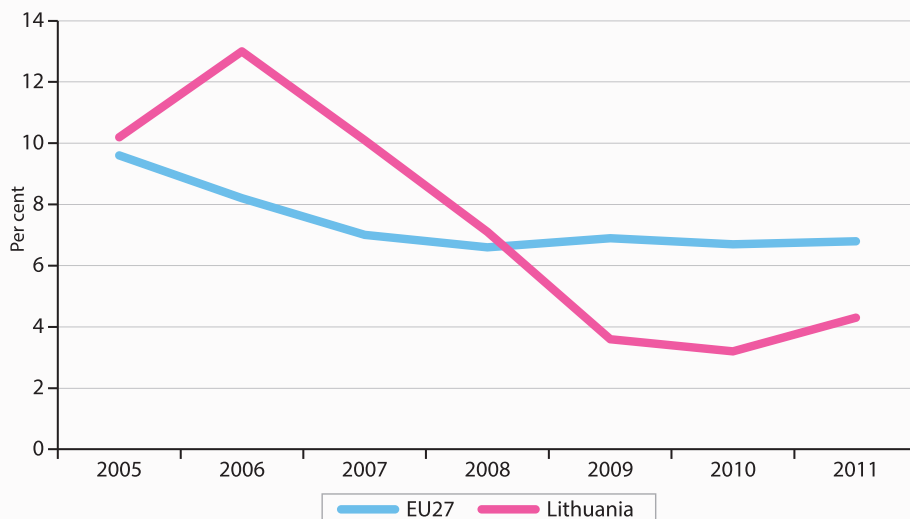
Based on Eurostat data received from interview of residents in 2010, 95,7% of Lithuanian respondents indicated that they were able to access to health care services, which was higher than EU27 average. Only 2.5% of residents did not receive the services in Lithuania due to three main reasons – too expensive, too far and too long waiting time.

In Lithuania number of residents who did not receive health care services or refused to get them started to decline in 2006 and since 2009 has been lower than the average in EU27 countries.

³⁷ EU statistics on income and living conditions.

Figure 59. Not delivered health care services (all causes), 2005-2011

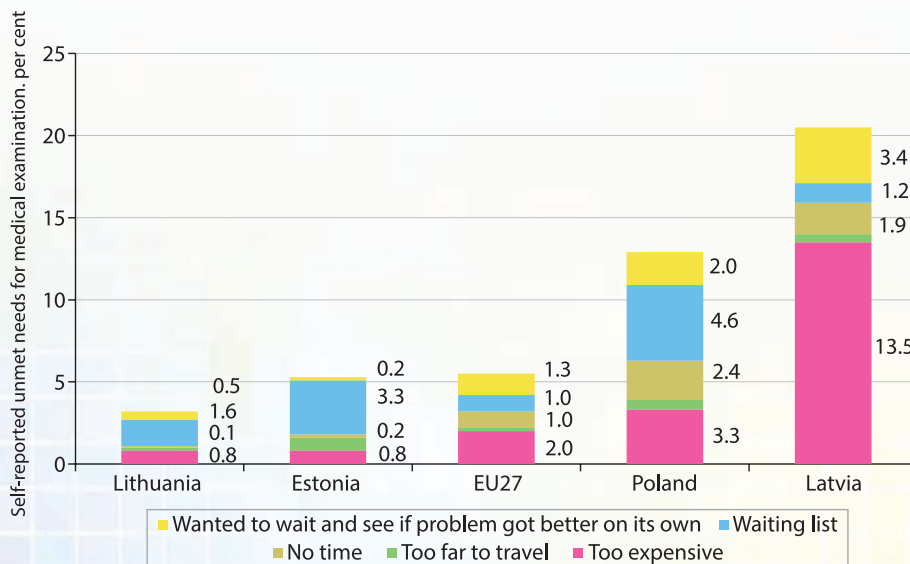
Source: Eurostat



Based on the answers of respondents from Latvia, Romania, Bulgaria and Greece, the main reason for not-receiving or refusing to receive health care services is their price (answer “Too expensive”). Majority of residents in Poland, Estonia and Lithuania indicate that they do not receive health care services because of long waiting times – official co-payments for delivered health care services are not applied in these countries or they are relatively small.

Figure 60. The structure of self-reported unmet health care needs, per cent, 2010

Source: Eurostat

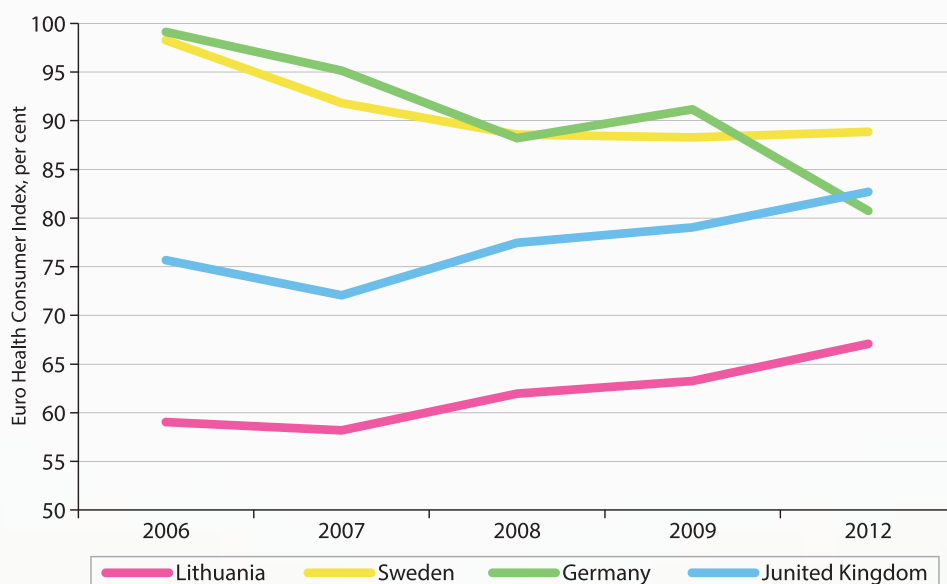


Relatively big part of respondents indicate that they did not receive services because they “Wanted to wait and see if problem got better on its own“. The biggest part of population not receiving services for such reason was in Sweden, Hungary, Latvia and Spain, possibly as a consequence of applied co-payment or costliness of services.

Changes in delivery of services in Lithuania also can be assessed based on the results of Euro Health Consumer Index (EHCI) studies. As number of countries participating in this study changes every year, as well as assessment methodology, authors compare different countries health consumer index with the country which ranks first of the Index. For example, in 2012 Lithuania had about 67 per cent of highest ranked country in the Index list. Presented figures demonstrate that index of health care services consumption in Lithuania gradually improves (from 59% to 67% of collected points, to compare with the top position).

Figure 61. Euro Health Consumer Index, percentage to compare with top position

Source: Health Consumer Powerhouse Ltd. (HCP)³⁸, SEC calculations



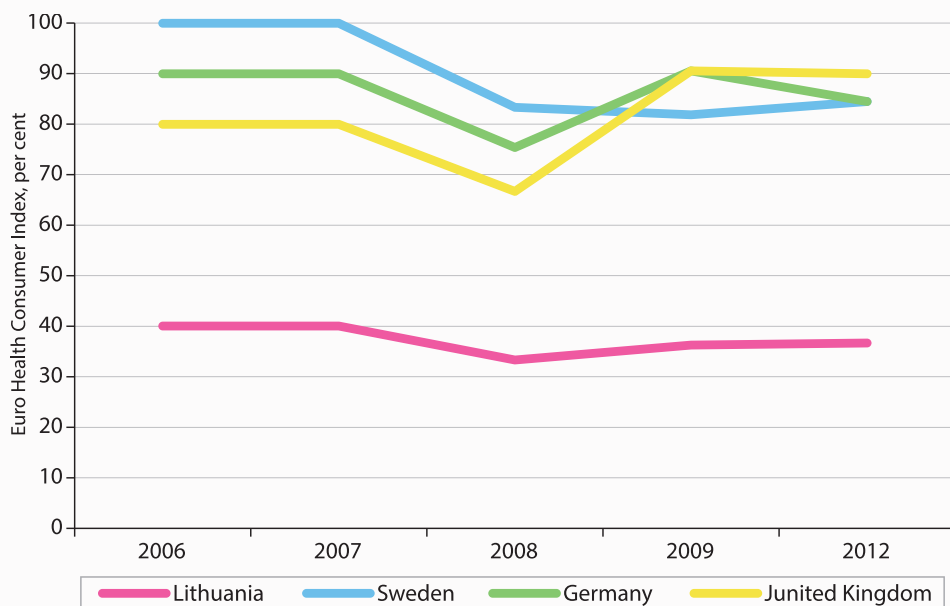
Based on the study carried out in 2012 it was stated that “Lithuania further has improved patient’s rights and came to better position when health care services are available at due time. Common indicators, such as survival of new-borns and vaccination, were positive; however some health care outcomes still were poor. [...] the worst situation probably is in shortage of pharmaceuticals, level of pharmaceuticals supply is the lowest in Europe.”³⁹

³⁸ http://www.healthpowerhouse.com/index.php?option=com_content&view=category&layout=blog&id=36&Itemid=55

³⁹ <http://www.healthpowerhouse.com/files/ehci-2012-press-lithuania.pdf>

Figure 62. Euro Health Consumer Index, pharmaceuticals, percentage to compare with top position

Source: Health Consumer Powerhouse Ltd. (HCP), SEC calculations



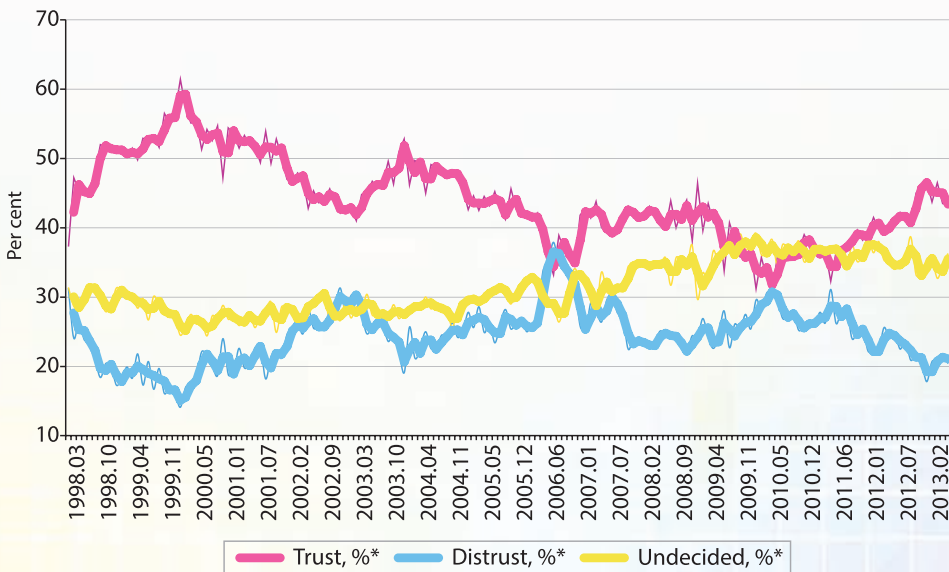
2.5. Trust in health care

Usually it is very difficult to make an objective assessment of how well authorities are serving people, but trust in state and its main institution can give such an assessment. Such trust reflects the extent of residents' confidence in activities and speeches of politicians and how actively and willingly the society is ready to contribute to implementation of plans proposed by authorities. Trust in physicians and the entire health system are especially important in health sector due to existing asymmetry of information, meaning that the patient usually has significantly less knowledge than his or her physician.

With the help of representative interviews carried out by independent institution of public opinion and market research, "Vilmorus Ltd." changes of population opinion with regards to different institutions can be monitored and factors influencing such changes analysed. Vilmorus has carried out the population's interviews by the commission of the daily newspaper Lietuvos Rytas since 1998 on a monthly basis. Despite continuous talks and publications emphasising poor health care in our country, residents give positive ratings for health care for almost the entire period of 1998-2012. The highest level of trust was reached in February 2000 (trust in system was expressed by more than 61% of respondents), and the lowest level of trust was reported in February 2010 (31.2%). Only in July 2006 did the number of respondents distrusting were higher than those who trusted the health system. It should be noted that distrust in health care has not increased since 2002. The highest influence on decline in trust in health care in 2002 was made by increased number of persons that were undecided with regards to health care rating.

Figure 63. Trust in health care, 1998-2013, percentage

Sources: Lietuvos rytas, Vilmorus



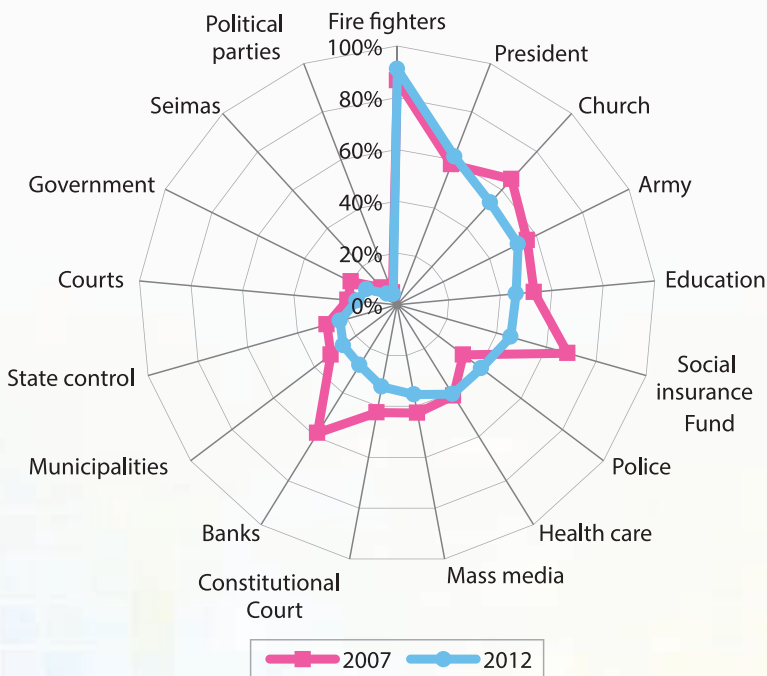
* – two period moving averages used

To some extent trust in health care or trust in institutions in general can be evaluated by the level of perceived corruption of those institutions.⁴⁰ A transparency international report with the help of Eurobarometer has revealed that Lithuania sees its country as more corrupt than an average country that joined the European Union after 2004 till 2009⁴¹. If we assume that a higher level of corruption is also associated with political decisions that do not favour the citizens, then Lithuania's health system becomes relatively untrustworthy as compared to other countries. At least a correlation was found between poor evaluation of health systems and corruption⁴². Lithuanian authors used similar surveys to show that Lithuanians value systems themselves more negatively than in other EU 27 countries in terms of quality⁴³.

It should be noted that there were changes in population trust in institutions both during long- and short-term period – during 2007-2012 – before economy crisis and after beginning of recession. Comparison of 2007 and 2012 data revealed significant reduction of trust in Social Insurance Fund (Sodra) and banks, reduction of trust in Church, mass media and Constitution Court as well as minor reduction of trust in army, education, municipalities and state control. Only trust in police has increased during this period. However trust in health care, despite of economy recession, remained almost unchanged. This proves that health system quite successfully coped with all difficulties caused by economy recession.

Figure 64. Trust in institutions, 2007-2012, per cent

Source: Lietuvos rytas, Vilnius, SEC calculations



⁴⁰ Uslaner, E. M. (2005, November). The bulging pocket and the rule of law: Corruption, inequality, and trust. In Conference on The Quality of Government: What It Is, How to Get It, Why It Matters (pp. 17-19).

⁴¹ http://issuu.com/transparencyinternational/docs/2006_gcr_healthsector_en?e=2496456/2670235

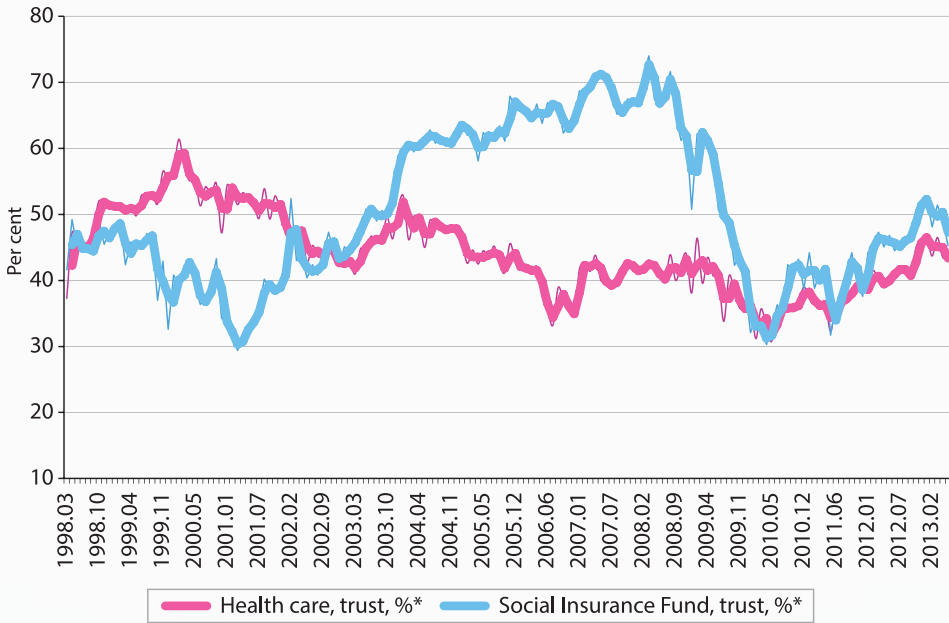
⁴² http://issuu.com/transparencyinternational/docs/2006_gcr_healthsector_en?e=2496456/2670235

⁴³ <http://journal.managementinhealth.com/index.php/rms/article/view/200/576>

Stability of health care system functioning can be illustrated comparing trust in health care and Social Insurance Fund. The figure shows that changes of trust in Social Insurance Fund during the period 1998-2012 were bound to the economic situation in the country, meanwhile trust in health care remained relatively stable. It is believable that health care financing mechanism, which was relatively stable and functioned via independent Compulsory Health Insurance Fund could have significant influence on such trust.

Figure 65. Trust in health and social insurance, 1998-2012

Source: Lietuvos rytas, Vilmorus



* – two period moving averages used

3

CHAPTER

HEALTH SYSTEM DEVELOPMENT POTENTIAL AND PROGNOSES

3.1. Forecast of demographic change and its impact on health care finances

Demographic projections (forecasts) can be significant part of future health care expenses. In some studies health care costs rises due to demography which includes population aging account for 30-40 per cent of total projected increase in expenditure. However, the below estimations show that overall budget for healthcare in Lithuania will be barely impacted by demographic changes, unless migration trends change.

To some extent, demographic indicators differ from other contributors of rising health costs (such as new health technologies or labour costs, increases in the intensity of treatments provided to patients, changes in the organisation, delivery and productivity of care) because the health system has less of a say on the former than on the latter. Moreover, it is likely that Lithuania will follow global trends and gradually adapt more expensive equipment (partly thanks to EU structural funds), but may face different demographic consequences. Therefore, this chapter is devoted specifically on demography's effect on costs and does not venture into other cost related affairs.

Demographic structure and size of the population will have slightly different consequences for Lithuania than for Europe as a whole, particularly for health care expenditures and income of the health care budget. While in the EU27 total population is increasing, the projections of the number of residents prepared according to the methodology of Eurostat⁴⁴ indicate that the number of residents in Lithuania will further decrease and may drop down to 2.9-2.8 million in 2020 and even down to 2.64 million in 2050⁴⁵.

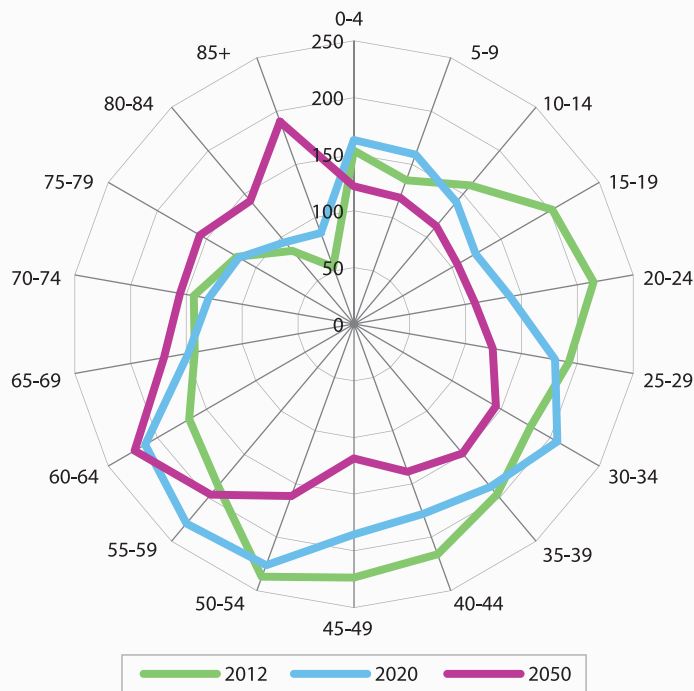
The picture below illustrates how the age structure of Lithuanian population could change up to the year 2020 and up to the year 2050. Based on calculations made, part of working age residents (15-64 years old) in Lithuania up to 2020 will reach about 64% of all population, percentage of non-working age residents (0-14 year old and 65+ year old groups) will be about 36% of all population. 0-14 year old and 65+ year old people, disabled people and other population groups defined by the law are assigned to the group of residents to whom compulsory health care insurance is provided from the means of state budget. It has been estimated that the share of non-working age residents may increase up to 44% of the whole population by the year 2050. Based on Eurostat calculation methodology, one Lithuanian resident of working age had 0.49 dependants (0-14 year old and 65+ year old people), it is expected that this figure will reach 0.55 in 2020 and 0.79 in 2050.

⁴⁴ Not taking into account the data of the data of population census in 2011.

⁴⁵ SEC calculations.

Figure 66. Thousands of residents in Lithuania in 2012, prognosis for 2020 and 2050

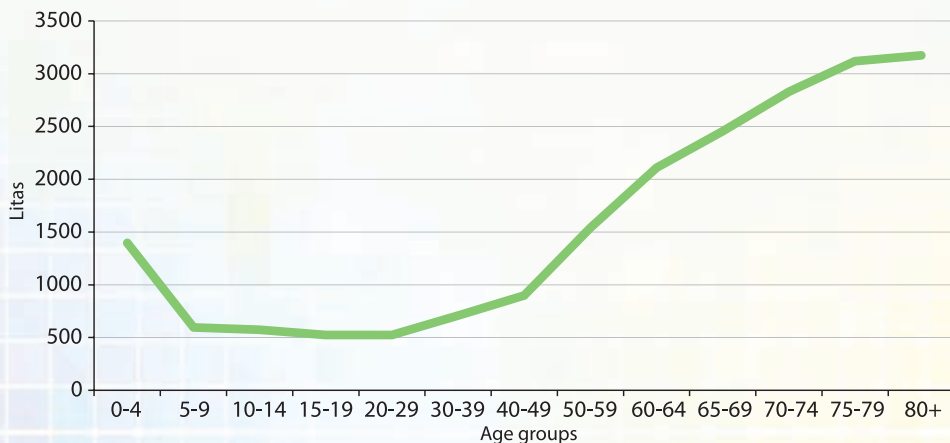
Source: Statistics Lithuania, SEC calculations following the methods of Eurostat



Relation between health care expenditure and population age structure in Lithuania is presented in the figure below. As expected, expenses start increasing from the age of 50 because of higher morbidity. This is similar to EU trends and for this reason aging is considered as one of the drivers of increasing health care expenditures.⁴⁶

Figure 67. Health insurance expenditure per capita and age groups in Litās, 2010

Source: NHIF. Report "Optimisation of finances management system", 2012



⁴⁶ The 2012 Ageing Report: Economic and budgetary projections for the 27 EU Member States (2010-2060). European Economy. 2. May 2012. Brussels. http://ec.europa.eu/economy_finance/publications/european_economy/2012/pdf/ee-2012-2_en.pdf

The age structural changes and the size of the population will have consequences on expenses of the health insurance fund. As calculation show, there will be less people of school and student age in 2020. This means we will need less pre-school establishments, schools and less child physicians and other health specialist working in these institutions. From the other point of view, increased number of residents aged 75 years and above means that more should be allocated for social insurance and health care, prevention and public health services, rehabilitation as well as for pharmaceuticals and nursing.

Overall due to only changes of demography, the total expenditures of the Compulsory Health Insurance Fund should increase by about 1.0-1.5% in ten years. If the population starts becoming healthier, then aging will have less effect on health care expenditures.⁴⁷ Nevertheless aging and decreasing number of the working age population will negatively impact the health care budget income due to far fewer people contributing to finance health care. Therefore, a significant financing gap may result if no adequate health policy is proposed.

3.2. Priorities for health strengthening in working age population

Analysis of the indicators of epidemiological and public health determinants in Lithuania for the recent decade, carried out in 2011-2012 aiming to assess the implementation of the Lithuanian Health programme for 1998-2010 and for the development of draft Lithuanian Health Programme 2020 (LHP 2020) provides the base for analysis of the priorities in health development. Defining the status of health indicators in Lithuania, and their comparison with the indexes of neighbouring countries, provides the base for quantitative assessment of health strengthening reserves (applying good international practice). If the mortality rates of EU countries are reached, potentially highest number of lives would be saved as a result of prevention of cardiovascular diseases and external causes of death as well as of improved control. The solution of five nosological health problems (death due to external causes, cardiovascular diseases, malignant neoplasms, digestive system diseases, infectious and parasitic diseases) based only by scientific evidence, would allow saving more than 25 thousand lives of Lithuanian residents. If our way to healthier society is based on health value attitudes, international and local experience along with improvement of lifestyle, environmental and improvement of health care quality, the average life expectancy of the Lithuanian population should increase from 73.4 years (in 2010) to 76 years in 2020. It has been proposed in the draft LHP 2020 to strive for the extension of average healthy life expectancy (LE) by 2 years, reduction in difference of LE between males and females to 8 years and reduction in difference of LE between residents of cities and rural areas to 2 years.

It should be noted that mostly people of working age (15-59 years old) die due to external causes in Lithuania. The calculation of saveable lives and life years was made by the algorithm described below.

⁴⁷ The 2012 Ageing Report: Economic and budgetary projections for the 27 EU Member States (2010-2060). European Economy. 2. May 2012. Brussels. http://ec.europa.eu/economy_finance/publications/european_economy/2012/pdf/ee-2012-2_en.pdf

The idea

The authors wanted to see how many lives and life years could be saved due to preventing different diseases and causes of death by 2020. In order to see how many lives and years can be saved in Lithuania, they assumed that mortality and lifelong years should merge towards trends in Europe for different age groups and different diseases. To do so, first data on standardized deaths per 100,000 on 7 main “mortality groups” were obtained and a ratio of deaths in Europe and Lithuania were calculated. For example, a ratio of 1.71 for diseases of the circulatory system in the age group of 15-29 years would mean that Lithuanians in that age group die from the disease 71% more often than in Europe. Then, the absolute number of deaths of Lithuanians in the age group for the disease was divided by the ratio, to see how many people can be saved.

Data specifications and issues

Data for *standardized mortality* per 100,000 inhabitants was obtained from WHO European mortality database (MDB) for most detailed age groups available: 0-1 years, 15-29 years, 30-44 years, 45-59 years, 60-74 years, 74+ years old. As mentioned, data for the EU12 average (except number of death due to malignant tumours; for this index the desirable level is that of EU 27 countries reported in 2010) and data on Lithuania was taken. The 7 mortality groups were: infectious and parasitic diseases, malignant neoplasms, cardiovascular diseases, respiratory diseases, digestive system diseases, external causes of death and other causes of death. The first 6 groups constitute over 90% of deaths in Lithuania and Europe.

The data on number of deaths for age groups for the mortality groups for Lithuania were taken from Statistics Lithuania. The issue was that due to different demographic structure, some inconsistency between standardized mortality ratio and non-standardized mortality was present. In particular, Lithuania has a lower share of older population. At the same time, perhaps it is easier to reduce the number accidents at a young age than that of older deaths with the same amount of effort. Future work could assess this discrepancy for more accurate results.

Assessment of life preservation potential

Reflecting the objectives of draft LHP 2020, the assumption has been made that it would be reasoned to reach the levels of EU 12 countries reported in 2010 by all age groups and all causes of death in 2020. Calculations were carried out in the groups aged 15-59 years old. The absolute number of death due to specific reason in each age group in the year 2020 was calculated by dividing the absolute number of deaths in 2011 in the respective group in Lithuania by the ratio of standardised index in Lithuania (or general mortality index, if standardised index is not available) and standardised mortality index for the respective age group and the respective cause of death in the group of reference countries.

Calculation of saved lives by year

The assumption is to be made that the change in number of death cases will be gradual. The decrease in number of death Δt every year has been calculated by the equation:

$$\Delta t = (\text{absolute number of death cases in 2010} - \text{absolute number of death cases in 2020})/10$$

Calculation of lives saved during the period 2011-2020.

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	In total during the period 2011-2020
Number of saved lives to compare with 2010	Δt	$2 \Delta t$	$3 \Delta t$	$4 \Delta t$	$5 \Delta t$	$6 \Delta t$	$7 \Delta t$	$8 \Delta t$	$9 \Delta t$	$10 \Delta t$	$55 \Delta t$

Note: if calculation of saved lives for other than 10 years period is desired, summing up of changes in the respective years should be done. For example, $15\Delta t$ lives will be saved up to the year 2015.

The structure of saved lives is presented indicating absolute numbers and percentage.

Calculation of preserved years of life

Calculation of life years that could be saved were obtained only for people before reaching the age for retiring for pension (65 years old). The age for every Lithuanian in a specific age group was set as the average age for that age group, e.g. average age for the period of 15-29 years is 22 years, for the period 30-44 years – 37 years, for the period 45-59 years – 52 years. Number of saved life years was calculated as a difference between 65 years and the average age of Lithuanian in his specific age period. For example, number of saved years for one Lithuanian saved in the age group of 15 to 29 is $65 - 22 = 43$ years, for the 30-44 years period – 28 years, and for the 45-59 years period – 13 years. Number of saved years of life in each age group is equal to the number of lives saved in this age group multiplied by the number of saved years, for example, 10 lives saved in the group of 15-29 years old persons will result in savings of $10 \times 43 = 430$ life years before reaching the age for retiring for pension (65 years old). Aiming to find the total number of saved years, the results by age groups are summed up. The structure of saved lives is presented indicating absolute numbers and percentage.

Figure 68. Mortality structure by the causes of death 15-59 years old persons, 2010

Sources: WHO, HISIC

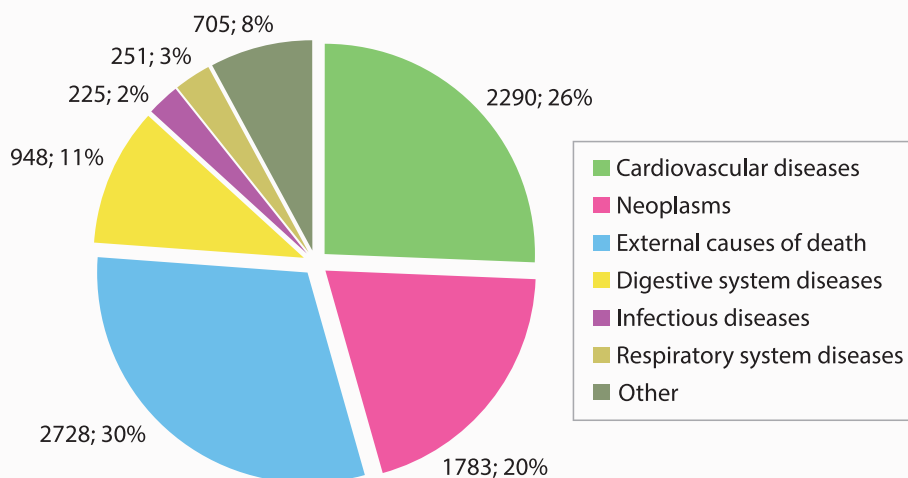


Table 1. Number of death cases by age groups and the causes, 15-59 years old persons, 2010

	Cardiovascular diseases	Malignant neoplasms	External courses	Diseases of digestive system	Respiratory system diseases	Infectious diseases
15-29	53	46	447	9	6	11
30-44	354	176	893	263	53	76
45-60	1883	1173	1388	676	192	138
Total	2290	1396	2728	948	251	225

Table 2. Comparison of standardised mortality indexes by age groups and causes between Lithuania and EU 12 countries. Indexes of EU 12 countries were equated to 1

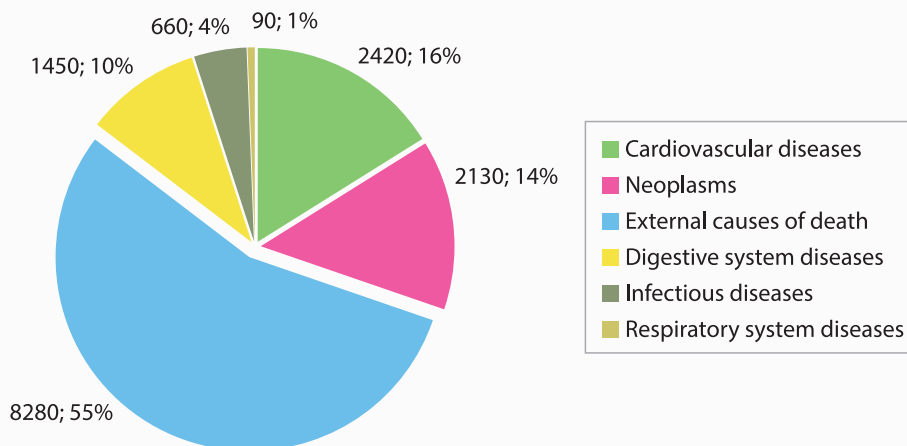
	Cardiovascular diseases	Malignant neoplasms*	External courses	Diseases of digestive system	Respiratory system diseases	Infectious diseases
15-29	1.5	1.0	1.9	2.0	1.0	1.5
30-44	1.6	1.2	2.3	2.0	1.4	2.8
45-60	1.2	1.3	2.3	1.2	1.0	2.0

* - EU 27

The draft LHP 2020 is based on the attitude that Lithuania in 2020 will reach the average of standardised mortality indexes of EU12 countries by certain groups of diseases.

Figure 69. Prognosis of potentially saved lives up to the year 2020, if provisions of LHP 2020 will be successively implemented

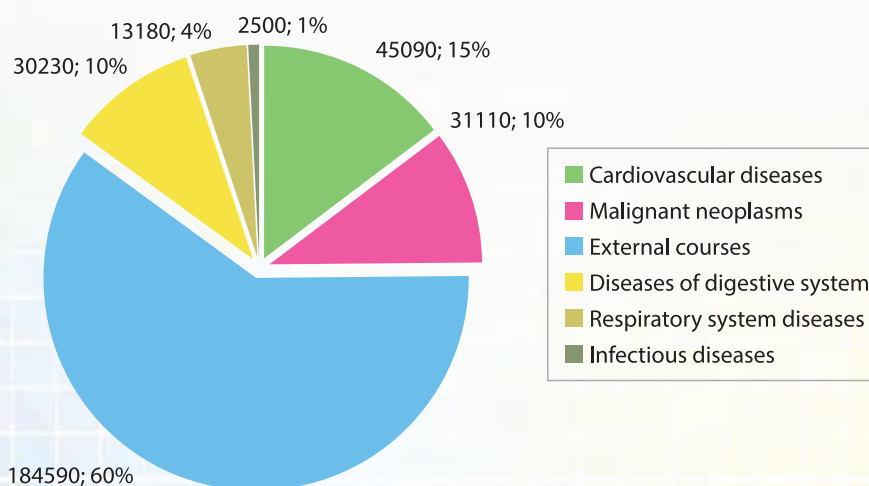
Sources: WHO, HISIC, SEC calculations



While external causes are relevant for the mortality of the whole population, especially relevant for the working age people and most lives could be saved there. During the period 2011-2020 (in the group of external causes of death) the biggest share of saved lives of working age population (15-59 year old) were linked to the decline in number of suicides, as well as prevention of deaths caused by exposure to excessive natural cold, drowning and submersion, traumas in car accidents. About 15,000 lives and about 300,000 life years could be saved in total before reaching the age of 65 years by 2020.

Figure 70. Number and structure of saved life years (15-59 years old persons) during the period 2011-2020, if provisions of LHP 2020 are successively implemented

Sources: WHO, HISIC, SEC calculations



3.3. How the economy benefits from a healthier population

Health care is more than just the consumption of goods and services in the name of health. A strong health care system provides jobs (many of which are highly valued) for the population, bring taxes for the state budget and creates value for the economy. In addition, a stable and well-functioning health system is able to enhance the performance of the rest of the population. For example, by curing illnesses and preventing deaths, the health system is able to return Lithuanian residents to work and thereby generate more value added.

Since 1990 the health sector has grown and provided an increasing number of services. As the quality of services increased and as more sophisticated technologies were used, the value generated by the health system grew and in 2011 generated about 4.4 billion Litass, or about 3.1% of total value added generated in Lithuania. Yet the share of output as compared to total economy was quite stable.

Figure 71. Structure of gross value added by production approach, per cent

Sources: Statistics Lithuania



While value added of the sector increased, the absolute number of those employed in health activities were relatively constant over the decade (2001-2011) and even during the 2008-2010 recession time.

Figure 72. Number of employed persons in selected industries, thousands

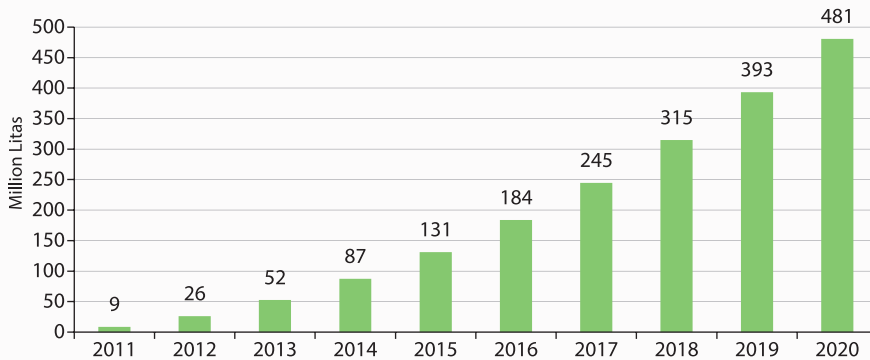
Sources: Statistics Lithuania



If health care services are provided and financed properly, a lot of extra value can be created by those who *use* the service as well. A healthy person is able to work, take care of his or her children, parents and the environment. The below graphs help explain why the economy is better off. First, by curing diseases thousands of lives could be saved as is the case in other more advanced European states. Assuming that those whose lives will be saved will continue working for average annual wage and contribute 32,000 Litass to GDP per year there will be an additional 480 million Litass worth of goods and services produced in 2020.

Figure 73. Augmentation of GDP since 2010 if death of working age people will be prevented as it has been planned in LHP-2020, million. Litass

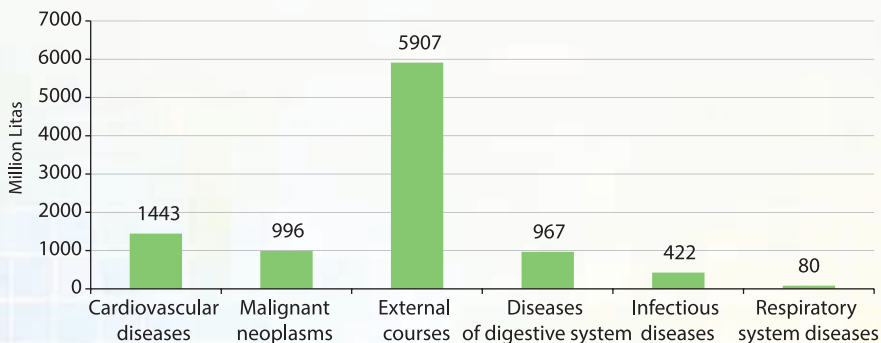
Sources: HISIC, Statistics Lithuania, SEC calculations



If those whose lives will be saved will continue working until retirement at the age of 65 years a total almost of 10 billion Litass will be reached. Application of best practice and the necessary investment into cardiovascular diseases alone will bring 1.4 billion Litass of extra revenue. At the same time investments for the solution of problems not directly related to the health system may result in savings of up to 5.9 billion Litass during the same period.

Figure 74. Additionally created part of GDP, occurring as a result of potentially saved lives according to the provisions of LHP 2020, million Litass

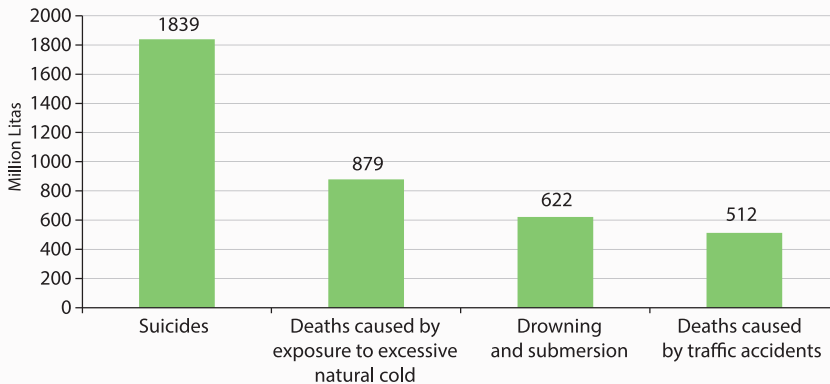
Sources: HISIC, Statistics Lithuania, SEC calculations



Considering the fact that biggest economic gain can be obtained as a result of reduction in death cases due to external causes, more details of additionally created GDP is presented below. Suicides are the leading cause of deaths and if they are reduced about 1.8 billion Litass in savings will be achieved.

Figure 75. Additional growth of GDP as a result of activities of people preserved from accidents in 2011-2020, million. Lit

Source: HISIC, Statistics Lithuania, SEC calculations



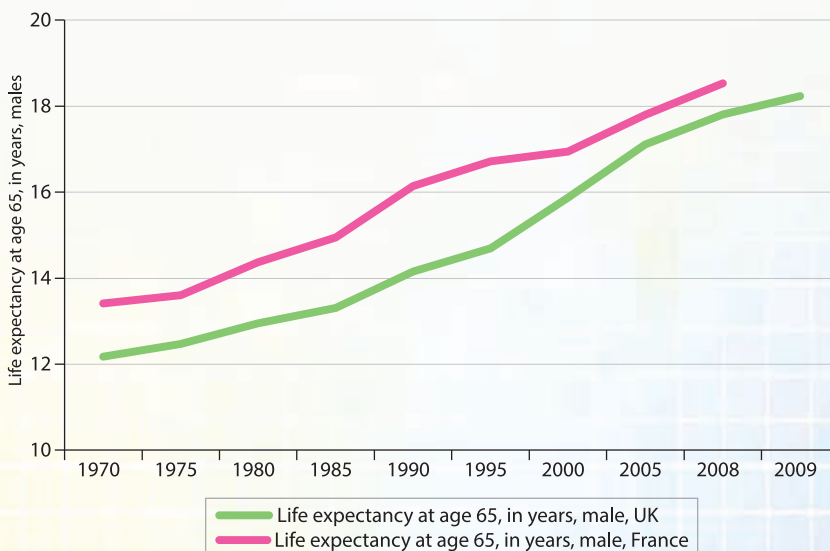
3.4. Priorities for health strengthening in elderly population

Additional investment could improve the health of the elderly population while extension of retirement age could further increase labour force. As a result additional goods and services (GDP) could be produced. At least part of the expected future tax revenue associated with the extra GDP growth could motivate current additional investment into population health.

Changes in life expectancy and the (formal) retirement age in some European countries are presented in figures below.

Figure 76. Trends of LE among the residents of Western Europe: LE of 65 year old males

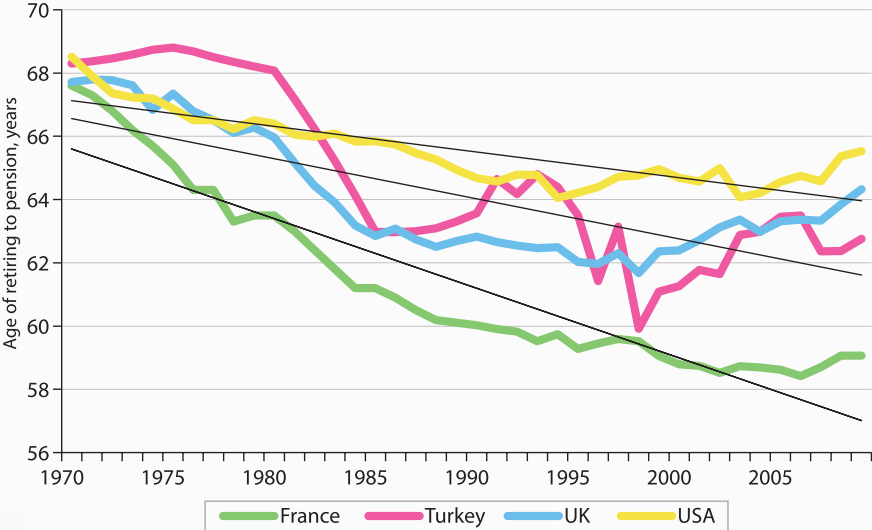
Source: Eurostat



The average life expectancy of males in Western Europe has continuously increased since 1970. 65 year old males in the United Kingdom lived in average almost 6 years longer and in France – almost 3 years longer in 2008, to compare with those 38 years ago. On the other hand, the factual age for retirement for pension has been shortened since 1970. This means that males had the possibility to retire for pension earlier. For example, during the period 1970-2008 the age for retiring for pension was shortened from 67.6 to 59.1 years in France and from 67.7 to 64.3 years in the United Kingdom. Similar trends were observed in the United States of America and in Turkey. However, opposite trends were observed as well. For example in the United Kingdom from 2005 the age of retirement has been extended.

Figure 77. Trends of social insurance in the developed countries worldwide.
Factual pension age, males

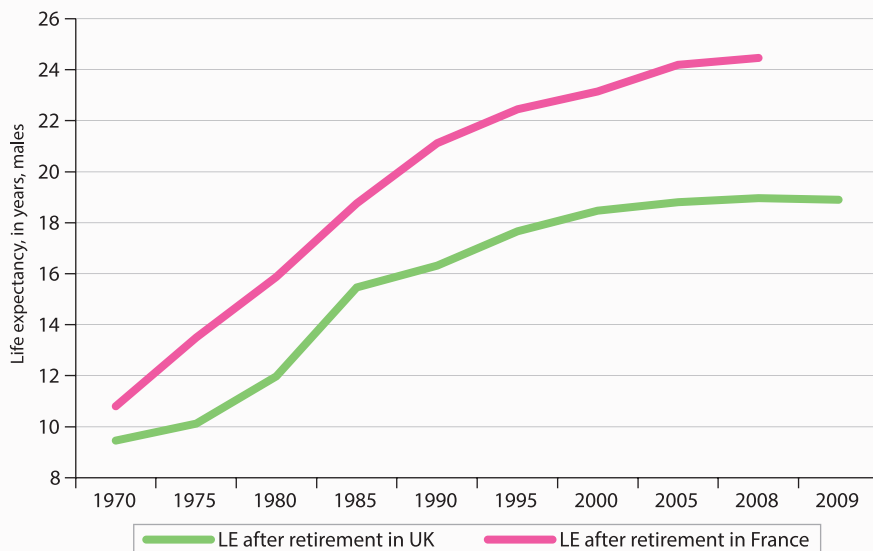
Source: OECD



As a result of early age for retiring for pension and longer life expectancy, a male retired for pension in 2008 in France can expect receiving pension for 24 years and in United Kingdom – for 19 years. Comparison of the situations in the years 1970 and 2008 revealed that now pensions for males living in Western Europe countries is paid on average for a period twice as long.

Figure 78. Average life expectancy after retirement, males

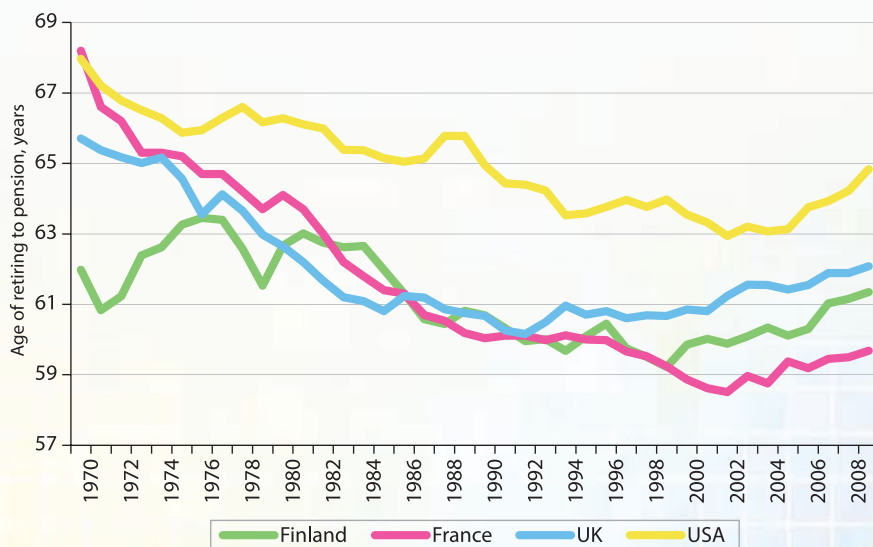
Source: Eurostat



The age of retirement for females was also decreased. However this trend has changed since 2000 in countries such as United States of America and United Kingdom where working period has been extended.

Figure 79. Trends of social insurance in the developed countries worldwide. Factual pension age, females

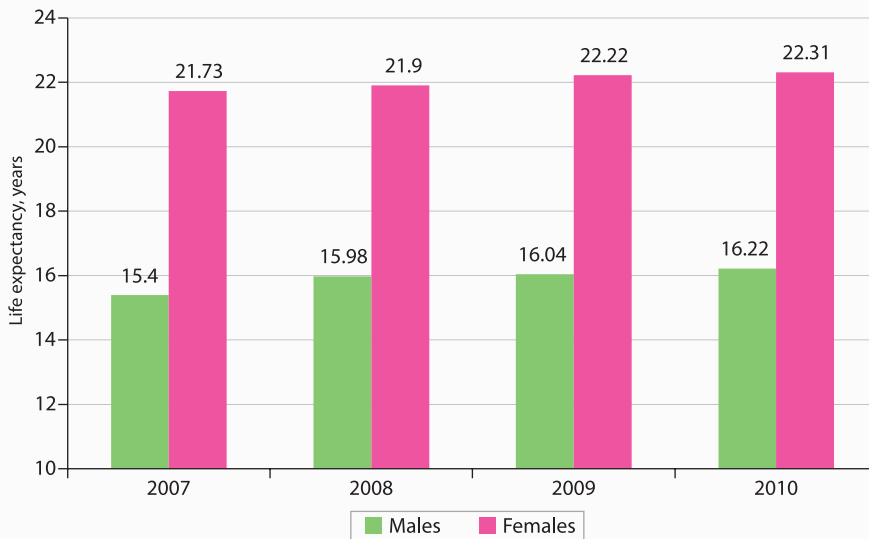
Source: OECD



Similar trends as in Western Europe are prevalent in Lithuania: 60 years old males in 2010 could be expected to live an additional 16.2 years and females – 22.3 years. Average life expectancy in Lithuania has increased by 0.8 years for males and by 0.6 years for females since 2007.

Figure 80. LE of elderly people in Lithuania (60 years old)

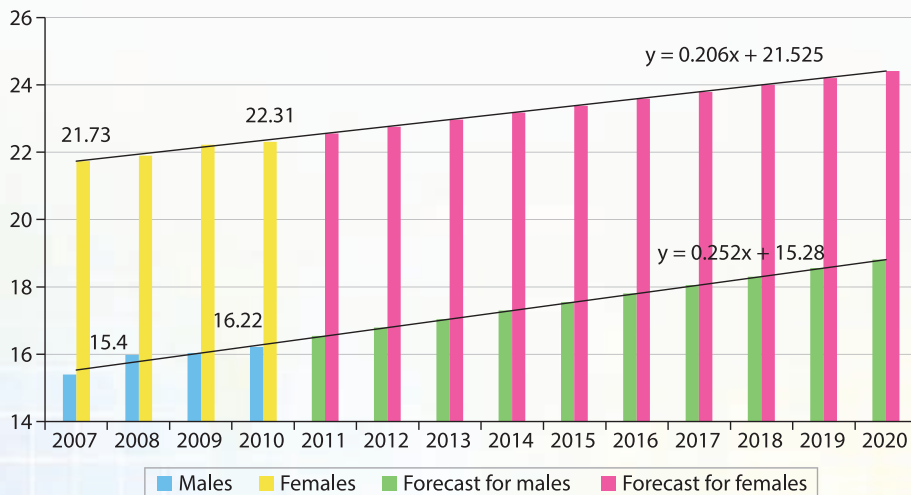
Source: Statistics Lithuania



If recent trends are maintained up to the year 2020, males in Lithuania on average will reach age of 78.8 years, and females – of 84.4 years. Calculating from the year 2010 the life expectancy will increase respectively by two and a half and by two years.

Figure 81. LE forecast of elderly people (60 years old) up to the year 2020, years

Source: Statistics Lithuania



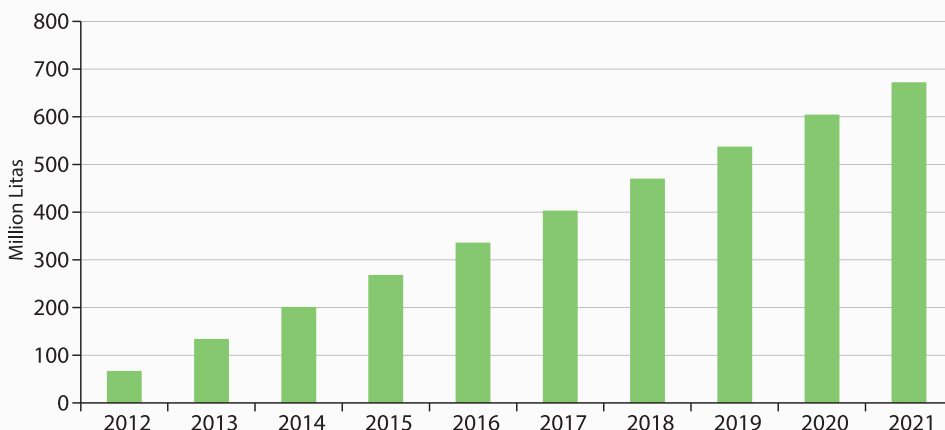
Since life expectancy of elderly people is expected to increase during the period 2013-2020, Government in Lithuania, like in other European countries, will have to make decisions regarding the retirement age. The following alternatives recently have been discussed most often:

- a) the age for retiring for pension is not changed and the period when individuals receive pension allowance is prolonged by the entire extended period of the life of elderly people. This policy was implemented in France during the period 2005-2010;
- b) the age for retiring for pension is extended proportionally to an increase in life expectancy of elderly people. Extension of life expectancy is used to prolong the working period. This policy was implemented in the United Kingdom during the period 2005-2010;

If alternative **a)** is chosen, the number of retired people would increase annually as a result of improved public health and longer average life expectancy of elderly people in Lithuania. The influence of augmentation in the number of retired people on allowances paid by the Social Insurance Fund is illustrated in the figure.

Figure 82. Prognosis for the growth of pension benefits, million Lit

Sources: Statistics Lithuania, SEC calculations

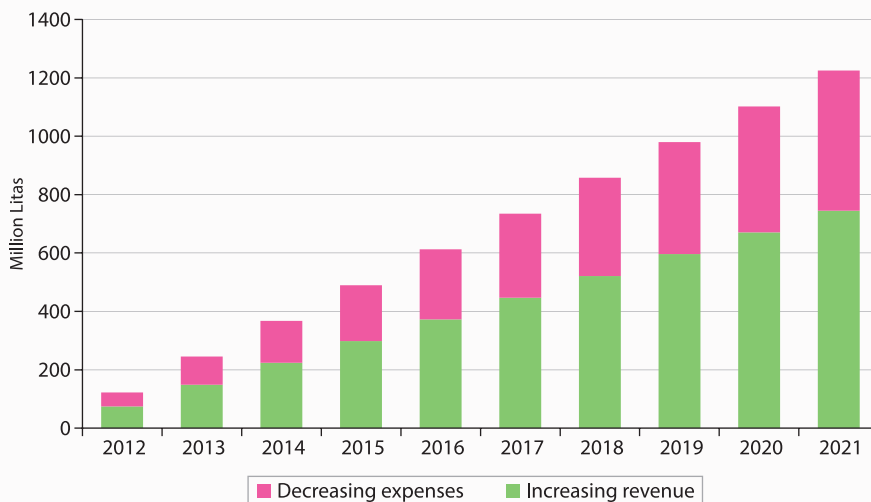


If alternative **b)** is chosen, the number of working age people would increase as a result of improved population health and longer average life expectancy of elderly people in Lithuania, almost without increase in the number of retired people. It can be expected that about 70% of the people not being able to claim for pension as a result of extended pension age, would stay in the labour market, creating additional products and services in Lithuania.

The assessment of impact on state finances if alternative **b)** would be selected by the state is presented below.

Figure 83. Decline in deficit of consolidated budget as a result of improved public health and increase in average life expectancy of elderly people, million Lit

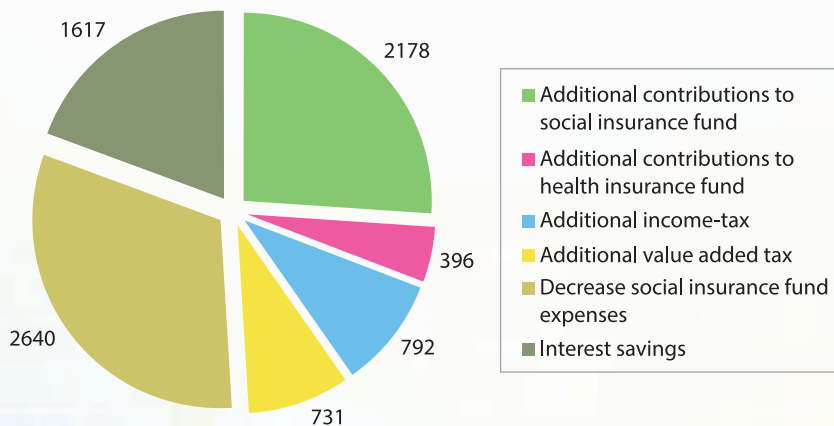
Sources: Statistics Lithuania, SEC calculations



Note. Extent of savings of Social Insurance Fund presented in this figure is less than in the previous figure because the likelihood that part of elderly people may receive allowances for disability for work or unemployment was considered.

Figure 84. Extent and structure of the increase (decline in expenditure) in revenue of consolidated budget of Lithuania as a result of extended age for retiring for pension, million Lit

Sources: Statistics Lithuania, SEC calculations



If all extra revenue associated with improved health of the population would be used to reduce existing nation debts, the total debts will be reduced by 8.4 billion Lit. This includes 1.6 billion worth of interest payments, that the State would not have to pay to foreign lenders at a high interest rate of 6% per year.

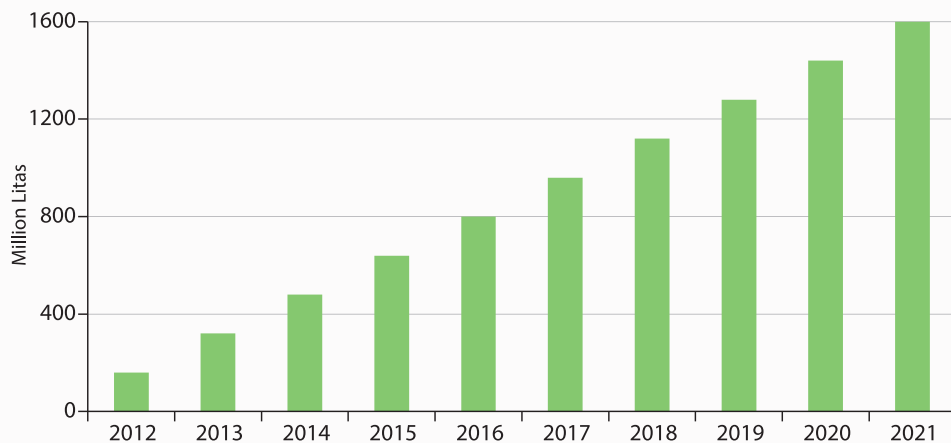
Even if reduction of national debt is considered as the only reason for population health improvement, it would be enough to substantiate all programmes that require an additional billion Lit for the investments in health care activities (increase of personal and public health services, investments for safety at work and at leisure time, prevention of addictions, etc.).

Improving health of the population is a source for additionally manufactured products and growth of GDP. Additional GDP is created as a result of:

- a) *increased labour force*, if the age for retiring for pension remains unchanged and mortality of the working age population is reduced;
- b) *increased labour force* and annual productivity of workers, if the age for retiring for pension remains unchanged and mortality and disablement level of the working age population is reduced;
- c) *increased labour force*, if the age for retiring for pension is extended.

Figure 85. Additionally generated GDP, million Lit

Sources: Statistics Lithuania, SEC calculations



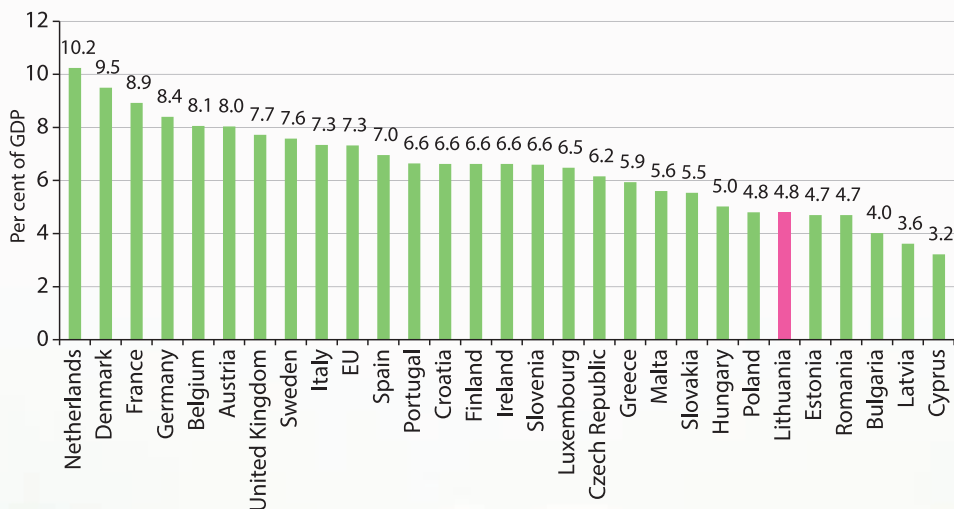
3.5. Recommendations for health sector development

Lithuanian health outcomes could be improved and the health system can play a big role in this development. International statistics provides insights how rising health system financing could assist to achieve these objectives. Demand for health care and health related services is high and increasing in all EU countries. In the European Union average of total expenditure on health care was 9.6% of GDP in 2011. A substantial part of this expenditure – more than 7.3% of GDP on average in the EU27 was public spending⁴⁸ and governments are already worried about increasing health expenditures. For example, British studies reveal that the NHS will require additional funding outside of the health system or increased taxes to pay for rising health bills⁴⁹.

The figure below shows that more well-off countries allocate relatively more public expenditures for the health of their population.

Figure 86. Public (general government) health care expenditure, per cent of GDP, 2011

Source: Eurostat



It would be recommended to follow the EU experience and converge to EU health care funding strategy. As Lithuania becomes richer, the share of wealth directed to health care should increase also, especially due to ageing of the population, occurrence of new modern technologies in medicines resulting in growing health care demands among residents as well as political intent to reduce huge regional health inequalities. It can be stated that without increasing health financing in Lithuania by similar rates as it has been done in the majority of EU countries, i.e. moderately overtaking growth of GDP, achieving population health objectives will be problematic.

The two possible options for the financing of health system are presented in the figure below. According to first scenario, based on trends of financing during the period 1995-2012, *public*

⁴⁸ WHO Health for all data base.

⁴⁹ Crawford, Rowena, and Carl Emmerson. "NHS and social care funding: the outlook to 2021/22" (2012).

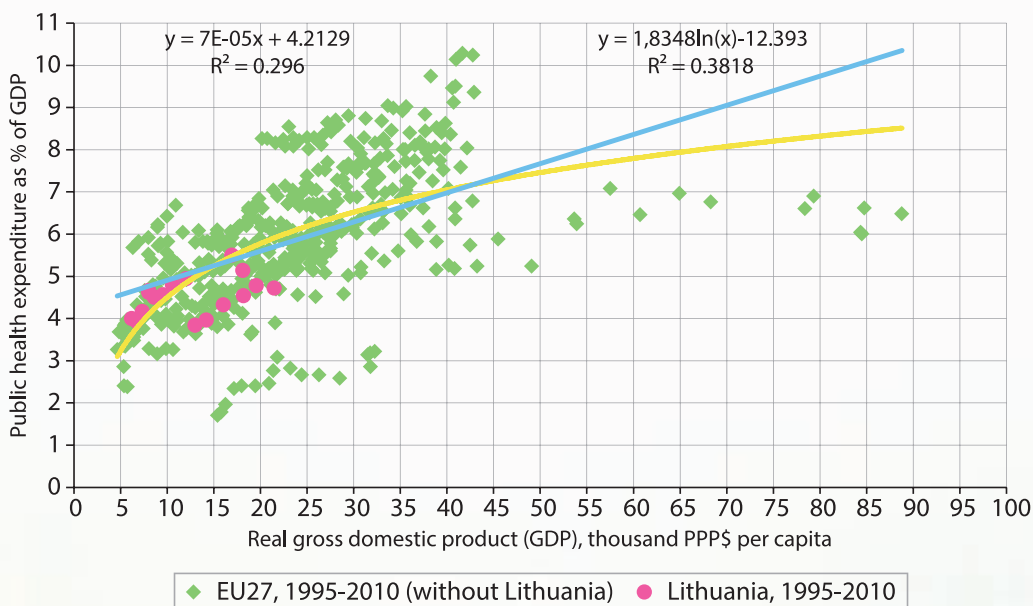
health expenses in 2020 would reach about 5.2% of GDP. This would mean that Lithuania is not converging with Europe.

Another option for financing – the “EU27 cost convergence scenario”, which „considers the convergence of all EU27 countries that are below the EU27 average of per capita public expenditure relative to GDP per capita to that EU27 relative average. This means that the country-specific age/gender per capita public expenditure profiles as a share of GDP per capita which are below the corresponding EU27 profiles in the base year (i.e. 2010) are assumed to increase to the EU27 relative average up to 2060.”⁵⁰ According to this scenario presented in 2012 Ageing Report in 2060 Lithuanian public health spending should reach 7.6 per cent from GDP. In this case total health care spending may be roughly 9.6% of GDP.

To achieve this target the public health care financing difference between EU27 and Lithuania should be reduced to at least 2.5 per cent points by 2020.

Figure 87. Correlation between real GDP in PPP\$ per capita and public health expenses, as per cent of GDP

Source. WHO, calculations by SEC



We made an assumption that Lithuania’s public health expenditure should follow trends that were observed by the whole European Union. Figure above show that as a country becomes wealthier the government spending on healthcare also rises⁵¹. Notice, that the increase in health care is more than the growth rate of the whole economy, which is why healthcare as per cent of GDP increases as GDP of a country increases.

In order to predict what Lithuania’s government spending is expected to be by 2020, we would need to know what Lithuania’s GDP will be in 2020. Using two methods, we have

⁵⁰ The 2012 Ageing Report: Economic and budgetary projections for the 27 EU Member States (2010-2060). European Economy. 2. May 2012. Brussels. http://ec.europa.eu/economy_finance/publications/european_economy/2012/pdf/ee-2012-2_en.pdf.

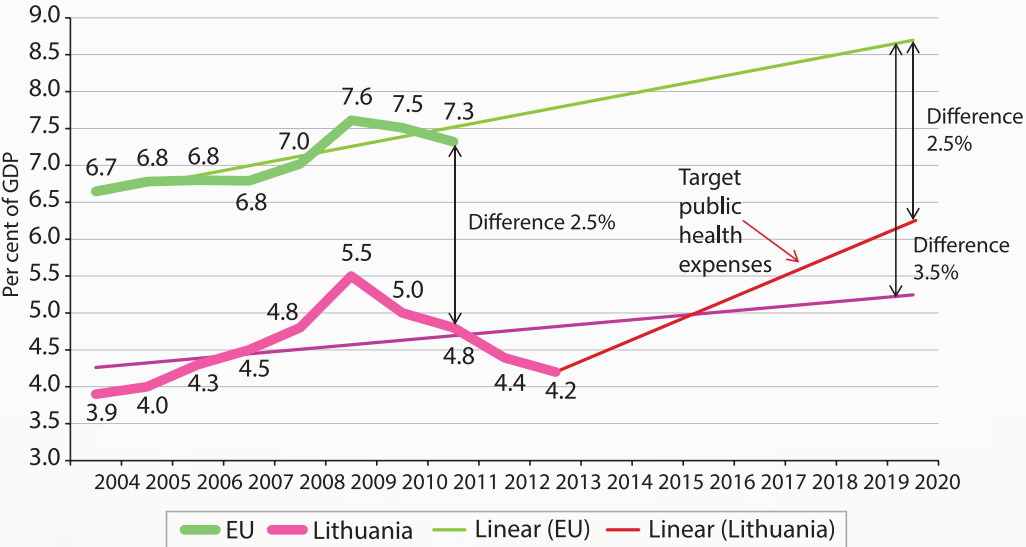
⁵¹ The trend line was made using yearly data on 28 EU countries (which includes Croatia but excludes Lithuania) taken from World Health Organization on real GDP in dollars per capita and public health spending as a share of GDP. The data was taken for years 1995 till 2011. One data point for UK was missing in 2009 and this data point was replaced with the average of 2008 and 2010.

estimated Lithuania's GDP per capita in PPP US dollars to be almost 30,000 USD in prices of 2011. The two methods were drawing a linear trend of Lithuania's GDP of using yearly real GDP in PPP USD data from 1995 till 2011 as well using convergence theory, where the richer a country is the slower it is expected to grow. The convergence data was taken from the same WHO database as that used in the prior equation.

The result is that Lithuania's *target public health expenses* in 2020 should reach between 6.2 and 6.4 per cent of GDP if it is to follow the European trend. As the public health budget was not rising in 2011-2013, there is an increasing risk that this level will not be reached. Because real GDP is growing, whether the trends of public health care spending in Lithuania will return to European trends depends increasingly on political will and on whether it could be shown that the extra funds will be used not only to enhance health care system performance, but to improve health outcomes as well - save more lives and reduce number of those who are sick.

Figure 88. Public health expenses, percentage of GDP trend and target public health expenses

Source. WHO, calculations by SEC



References

- Statistics Lithuania (Statistics Department of Lithuania).
- WHO, Eurostat, OECD Statistics data bases.
- OECD (2011), "Life expectancy at birth", in Health at a Glance 2011: OECD Indicators, OECD Publishing. http://dx.doi.org/10.1787/health_glance-2011-4-en
- United Nations development programme. HIV, health and development. Strategy note 2012-2013. <http://www.undp.org/content/dam/undp/library/hiv/English/HIV%20Strategy%20Document%20-%20New.pdf>
- Adelaide Statement on Health in All Policies. WHO, Government of South Australia, Adelaide 2010.
- Blakely, Tony A., Sunny CD Collings, and June Atkinson. "Unemployment and suicide. Evidence for a causal association?". *Journal of Epidemiology and Community Health* 57.8 (2003): 594-600.
- Ruhm, Christopher J. 2000. "Are Recessions Good For Your Health?" *Quarterly Journal of Economics*. May, 115:2, pp. 617-50.
- Johansson, S. E., & Sundquist, J. (1997). Unemployment is an important risk factor for suicide in contemporary Sweden: an 11-year follow-up study of a cross-sectional sample of 37 789 people. *Public health*, 111(1), 41-45.
- KELLY, M. P., & DOOHAN, E. (2011). The Social Determinants of Health. *Global Health*, 75.
- Ministry of Finance of the Republic of Lithuania. http://www.finmin.lt/web/finmin/koment/akcizai_tarifai
- Murauskiene L., Janoniene R., Veniute M., van Ginneken E., Karanikolos M. Lithuania: health system review. *Health Systems in Transition*, 2013; 15(2):1-150.
- National Health Insurance Fund under the Ministry of Health (NHIF). <http://www.vlk.lt/info/item/id/2143>
- OECD (2011), Health at a Glance 2011: OECD Indicators, OECD Publishing. http://dx.doi.org/10.1787/health_glance-2011-en
- Lithuania. Social Sectors Public Expenditure Review. Prepared for the Republic of Lithuania by the World Bank Group, May, 2009. Eastern Europe and Central Asia region, Human Development Department.
- Lithuania. Social Sectors Public Expenditure Review. Prepared for the Republic of Lithuania by the World Bank Group, May, 2009. EASTERN EUROPE AND CENTRAL ASIA REGION, HUMAN DEVELOPMENT DEPARTMENT.
- OECD, 2000. A system of Health Accounts. The publication was prepared by OECD – Organisation for Economic Co-operation and Development).
- Cerniauskas, G. (2010). Lietuvos sveikatos sektorius amžų sandūroje (Lithuanian health care sector in the turn of the Century). Vilnius: UAB Sveikatos ekonomikos centras. <http://www.healthpowerhouse.com/files/ehci-2012-press-lithuania.pdf>
- Uslaner, E. M. (2005, November). The bulging pocket and the rule of law: Corruption, inequality, and trust. In Conference on The Quality of Government: What It Is, How to Get It, Why It Matters (pp. 17-19).
- Transparency International, http://issuu.com/transparencyinternational/docs/2006_gcr_healthsector_en?e=2496456/2670235
- Management in Health, Vol 15, No 3 (2011). <http://journal.managementinhealth.com/index.php/rms/article/view/200/576>
- The 2012 Ageing Report: Economic and budgetary projections for the 27 EU Member States (2010-2060). European Economy. 2. May 2012. Brussels. http://ec.europa.eu/economy_finance/publications/european_economy/2012/pdf/ee-2012-2_en.pdf
- Crawford, Rowena, and Carl Emmerson. "NHS and social care funding: the outlook to 2021/22" (2012). Gapminder, <http://www.gapminder.org/data/>
- Health Information Centre of Hygiene Institute (HISIC).
- Health Consumer Powerhouse Ltd. (HCP), http://www.healthpowerhouse.com/index.php?option=com_content&view=category&layout=blog&id=36&Itemid=55
- NHIF. Report "Optimisation of finances management system", 2012.

Health Studies **Lithuania 2013**

Health Sector Development and
its Impact on National Economy

AUTHORS

ROMUALDAS BUIVYDAS
NERIJUS ČERNIAUSKAS
ALGIS DOBRAVOLSKAS

PREPARED

SVEIKATOS EKONOMIKOS CENTRAS
(HEALTH ECONOMICS CENTRE, SEC)

DESIGNER

VIDAS ČERKAUSKAS

PUBLISHING BY

PETRO OFFSETAS

SAVANORIŲ AVE. 174D, LT-03153 VILNIUS