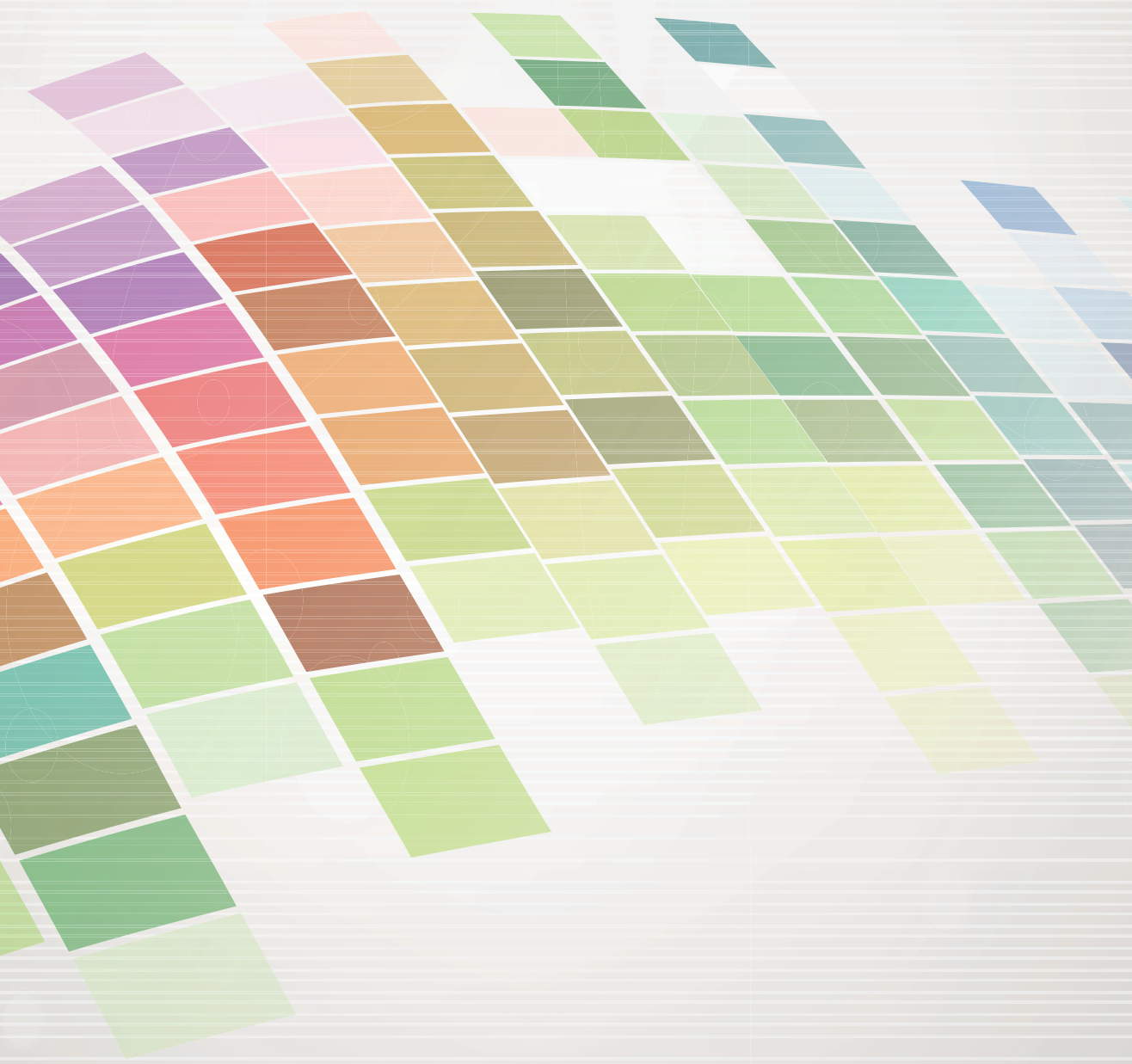


# HEALTH STUDIES: **LITHUANIA 2012**

Convergence of European Health Systems



# HEALTH STUDIES: **LITHUANIA 2012**

Convergence of European Health Systems

**Authors**

ROMUALDAS BUIVYDAS, Sveikatos ekonomikos centras (Health Economics Centre, SEC)

GEDIMINAS ČERNIAUSKAS, Mykolas Romeris University

ALGIS DOBRAVOLSKAS, Mykolas Romeris University

**Reviewed by**

EUGENIJA MARTINAITYTĖ, Mykolas Romeris University

ROMAS LAZUTKA, Vilnius University

**Prepared by**

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)

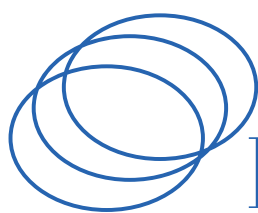
from the RESEARCH COUNCIL OF LITHUANIA

in association with the NATIONAL HEALTH BOARD &

MYKOLAS ROMERIS UNIVERSITY

**Publication sponsored by**





health  
forum

This publication  
is intended for the participants  
of the annual

**Conference  
of the Health Forum,**

November 29–30, 2012,  
Vilnius, Lithuania

# CONTENT

## PURPOSE OF THE STUDY 5

Acknowledgment 5

## IS HEALTH THE MAIN CONCERN OF LITHUANIA? 6

## SITUATION IN 1990–2010 7

Demographic situation 7  
Life expectancy 8

## LOSSES 11

Diseases with health effects that cannot be measured precisely 29  
The disabled 33  
Failure formula 35

## ACHIEVEMENTS 37

## LITHUANIA IN EUROPE 43

Health care system resources and functioning in Lithuania and EU Member States 44  
Funding of health promotion activities in Lithuania 54  
Compulsory health insurance income and expenditure 60  
Expenditure on pharmaceuticals and medical aids 62  
Evaluation of the results of the previous period 68

## OPPORTUNITIES IN 2012–2020 69

## LITHUANIAN POPULATION'S ATTITUDE TOWARDS HEALTH ISSUES 74

Bibliography and references 75

# PURPOSE OF THE STUDY

The main purpose of this study is to analyse the efficiency and long-term sustainability of Lithuanian health care services.

## Acknowledgment

- The Lithuanian health care system has been analysed in cooperation with the responsible officials of Lithuanian public institutions, using official Lithuanian and EU databases and information sources. The authors are particularly grateful to the respectful representatives of the Lithuanian Ministry of Health and the National Health Insurance Fund for the opportunity to use the information sources of these institutions.
- Special thanks to young researchers Nerijus Černiauskas, Bernandas Bačiulis, and Martynas Monkus, who contributed to data collection and processing. The paper would not have been ready in time without the advice and editing services provided by Ms Daina Miliauskaitė.

## Lithuania in brief

- The Republic of Lithuania (Lithuanian: *Lietuvos Respublika*) is a country situated in Northern Europe along the southeastern coast of the Baltic Sea.
- Lithuania has an area of 65.300 sq km and an estimated population of 3.2 million as at 2011. Its capital is Vilnius.
- Lithuanian is the official language of the country, with Russian and English widely spoken as well.
- Lithuania is a member of NATO, the Council of Europe and the European Union. Lithuania is also a full member of the Schengen Agreement.
- Prior to the global financial crisis, Lithuania was one of the fastest growing economies in the European Union, but suffered an extreme downturn in 2009.
- The United Nations Human Development Index lists Lithuania as a “Very High Human Development” country with high education scores and moderate health and general development scores. According to recent estimates of the International Monetary Fund, in 2011, Lithuania’s GDP (PPP) per capita in USD made up approximately 18.000 and was similar to the figures of its regional peers, such as Poland, Russia and Latvia.

Table 1. Macroeconomic indicators

	2005	2006	2007	2008	2009	2010	2011
GDP growth, %	7.8	7.8	9.8	2.9	-14.8	1.4	5.9
Annual inflation, %	2.7	3.7	5.7	10.9	4.5	1.3	4.1
Unemployment rate, %	8.3	5.6	4.3	5.8	13.7	17.3	15.4

Source: Statistics Lithuania

# IS HEALTH THE MAIN CONCERN OF LITHUANIA?

A representative survey<sup>1</sup> commissioned by the Ministry of Health was carried out in the course of the preparation of the new Lithuanian Health Programme, in June 2011, to find out public opinion on health and health policy issues.

The representative survey of the Lithuanian population has shown that the majority of the population understand that the lifestyle and living environment have the strongest impact on health.

More than 90% of the respondents agree with the statement that health must be the

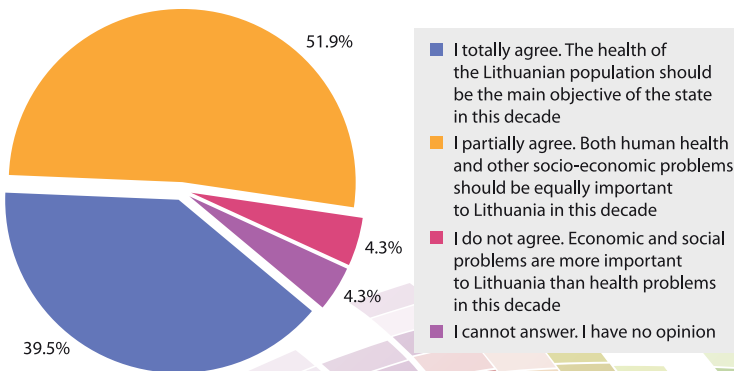
main or one of the major concerns of the state. Approximately 40% of the residents surveyed see health improvement as the main concern of the state and almost 52% of them consider it to be one of the major priorities of Lithuania.

<sup>1</sup> The survey was carried out in the framework of the project "Health System Reform Analysis" in the course of the implementation of Project No. VP1-4.2-VRM-05-V-01-004 of the Ministry of Health of the Republic of Lithuania "Systemic analysis of health sector reforms in order to improve the implementation of the European Union health policy" under the Measure VP1-4.2-VRM-05-V "Improved implementation of European Union policies" implementing Priority 4 "Strengthening administrative capacities and increasing efficiency of public administration" of the Operational Programme for Human Resources Development for the Period 2007–2013.

## Representative survey of Lithuanian public opinion

Source: Project "Performance of Health System Reform Analysis"

Do you agree that the health of the Lithuanian population should become the main concern of the state during this decade?



# SITUATION IN 1990–2010

Creating conditions for a healthy and long life of its population, Lithuania has accumulated certain long-term strategic planning experience. In the first decade of its independence, Lithuania tackled the issues of consolidation of its political sovereignty, reorganisation of planned economy into market economy, state budget stability, and tried to curb inflation. Relatively little attention paid to the social sector (including health care) at that time was partially understandable. However, after the country's economy intensified and Lithuania joined

NATO and the European Union, the situation changed substantially.

The need for national economy whose further rapid growth requires a healthy workforce has determined the need for priority health sector development. Retirement age extension programmes implemented in many EU Member States in recent years are based on the fact that medical progress ensures high working capacity of elderly people. A higher number of elderly people in good health is one of the main ways to solve the problem of staff shortages.

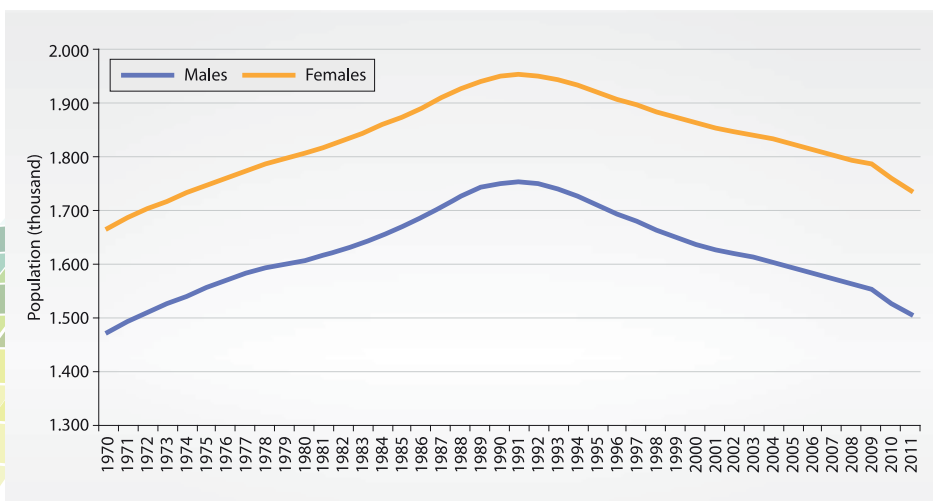
## Demographic situation

At the start of 2011, Lithuania had a population of 3,244,600, including 1,547,700 (46.5%) men and 1,781,300 (53.5%) women. A total of 2,229,500 (67%) residents lived in cities and 1,099,500 (33%) in rural residential areas. In early 2011, the number of residents aged

over 64 years made up 535,700 or 16.5% of the country's total population. The population is ageing, i.e. the number of elderly people in the total population is on the rise: from 2001 to 2011, the retirement-age population grew by more than 50,000.

### Population in Lithuania, 1970–2011

Source: Statistics  
Lithuania





The population of Lithuania grew until 1991 and then started to shrink. In 1993, the number of births started a significant decline and in 2002 made up merely 8.6 per 1.000 population. In 2003, the number of births began to grow to reach 36.700 in 2009, up by 1.600 from 2008; the number of births per 1.000 population rose from 8.8 in 2004 to 11 in 2009. In 2010, the number of births reached 35.626 or 10.8 per 1.000. The total fertility rate in 2009 was 1.55 (1.39 in 2000), i.e. relatively low and failing to ensure demographic balance and generational change, although in 2009 it already exceeded the EU average.

A total of 42.120 people died in Lithuania in 2010. Although the death rate started to decrease in 2008, natural population change

in Lithuania in 2010 was negative: the number of deaths exceeded the number of births by 6.494. The declining number of births has determined and will determine the ageing of the population. In 2020, the number of residents older than 65 years is expected to make up approximately 17.3%.<sup>2</sup>

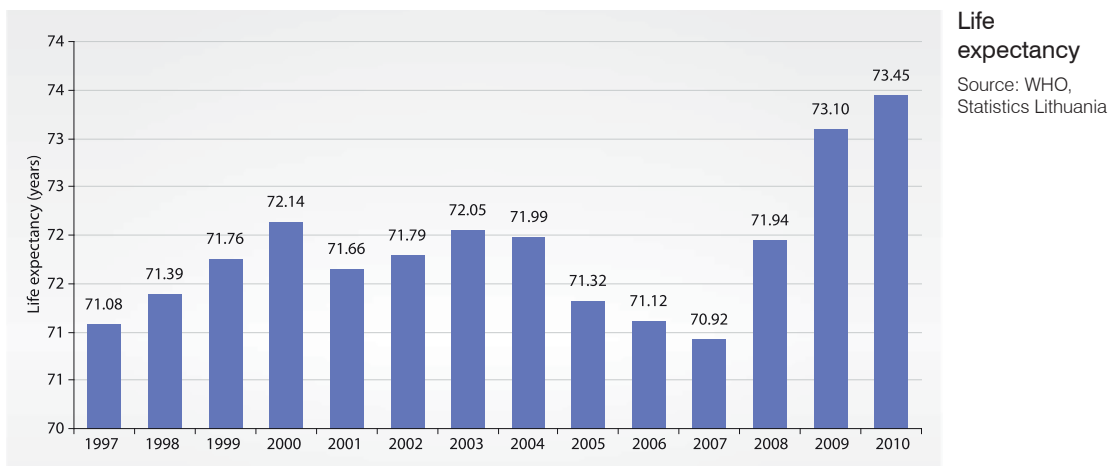
In the first year after the restoration of independence, the decrease of the Lithuanian population has been influenced by emigration to Russia and later to Western Europe. According to information available to Statistics Lithuania, the highest number of emigrants over the period of 20 years was recorded in 2010 (77.900 residents).

<sup>2</sup> Eurostat database

## Life expectancy

In 1990–1994, a difficult economic situation and a declining standard of living determined a deterioration in life expectancy indicators in Lithuania. Although the decline in life expectancy in Lithuania was slightly smaller than in the neighbouring Baltic states, it stood at merely 65.5 years in 1994. This was the lowest life expectancy rate in Lithuania in the entire period since 1970. In 1994, life expectancy figures started to grow and in 2000 almost reached the 1986 level (72.27 years and 72.32 years, respectively). However,

in 2001, life expectancy began to decline again due to the increasing mortality rate and fell to 70.92 years in 2007 (i.e. was lower than the 1997 level). According to the 2009 data, Lithuania ranked last among all EU Member States in terms of life expectancy at birth. Nevertheless, the goal of increasing life expectancy in Lithuania to 73 years set in the Lithuanian Health Programme (LHP) was achieved. Based on the 2010 data, Lithuania's life expectancy further increased to reach 73.45 years.



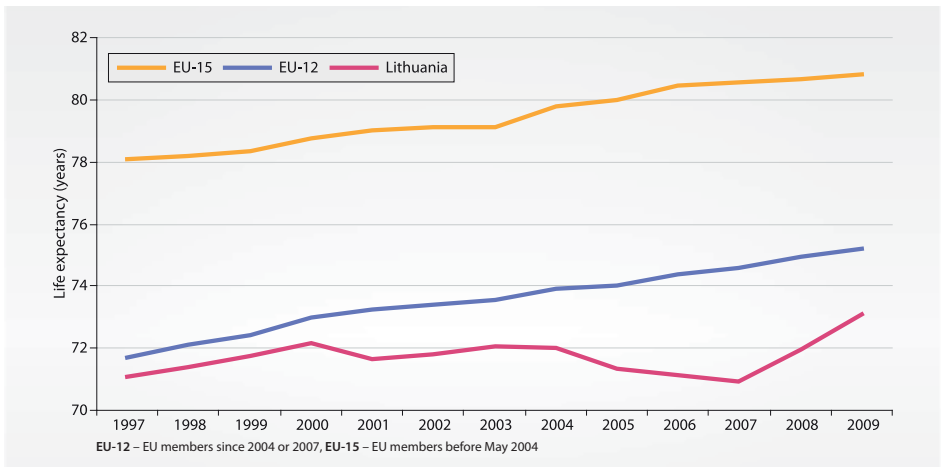
One of the major health-related problems of the country was unevenness of population health indicators in 1996–2009. Positive trends in life expectancy were observed in 1996–2000 and 2008–2010. In 2001–2004, health indicators were virtually unchanged (life expectancy stood at around 72 years). In 2005–2007, these indicators went down.

Possible causes of uneven changes in life expectancy will be discussed in the analysis of mortality-based indicators and health determinants.

In 1997–2009, life expectancy rates improved by an average of three years (from 76.7 to 79.7 years) in EU Member States and by two years (from 71.1 to 73.1 years) in Lithuania.

### Comparison with EU Member States, life expectancy

Source: WHO

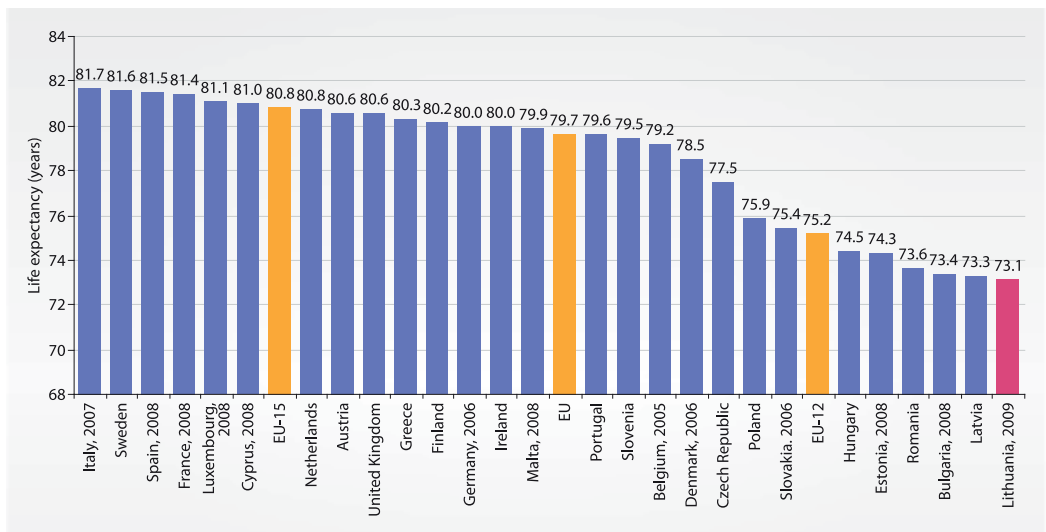


Lithuania's population health level improved more slowly than that of EU Member States and consequently Lithuania ranked last among all EU Member States in terms of this

indicator in 2009, although in 1997 it was ahead of Bulgaria, Estonia, Latvia, Romania and Hungary.

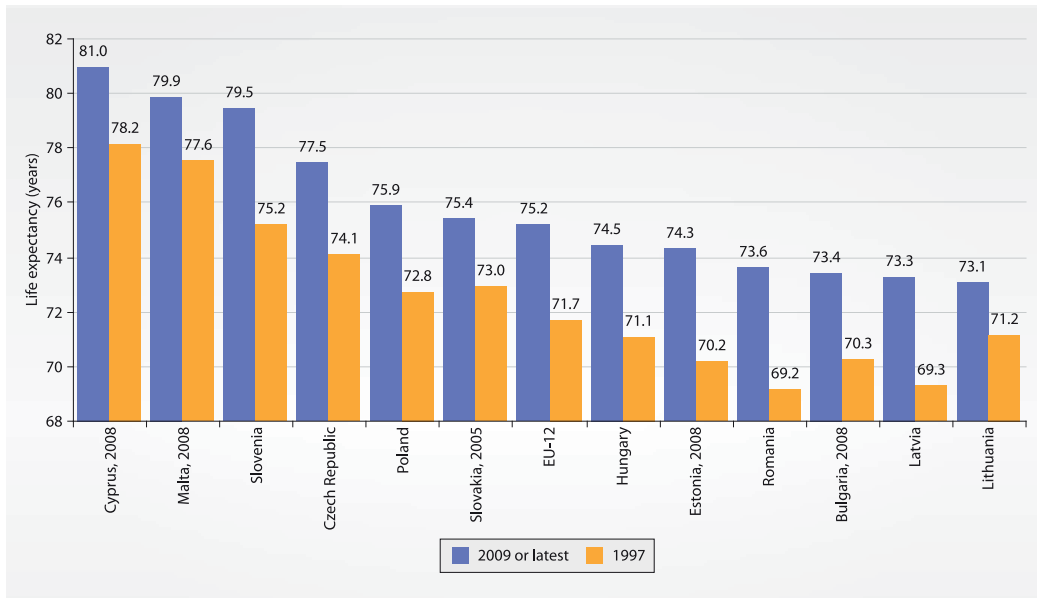
### Comparison with EU Member States, life expectancy, 2009

Source: WHO



## Comparison with EU-12, life expectancy, 2009

Source: WHO



According to the 2009 data available to the World Health Organisation (WHO), Lithuania was in the 76<sup>th</sup>–87<sup>th</sup> place among 193 countries of the world in terms of life expectancy (in the 73 year life expectancy category) next to Albania, Belize, Brazil, Grenada, Iran, Malaysia, Mauritius, Morocco, Romania, Saint Vincent and the Grenadines,

and Seychelles. Based on the 2009 data available to the WHO, San Marino and Japan enjoyed the longest life expectancy (around 83 years), with the shortest life expectancy recorded in Lesotho (48 years), Zambia (48 years) and Malawi (47 years).<sup>3</sup>

<sup>3</sup> Website <http://apps.who.int/ghodata/?vid=720>

# LOSSES

Two decades ago, Lithuania was one of the leading Eastern and Central European countries in terms of population health indicators. In 2010, the country was among the region's outsiders in terms of life expectancy. The losses were not limited to the general health level indicators.

Insufficient attention to social processes manifested in:

- the scale of emigration;
- the number of suicides;
- harmful lifestyles;
- high mortality rates;
- low quality of health services.

## Emigration

Lithuania is a state open to population movement. Unfortunately, more people choose to leave the country than to move into it.

Since 2001, emigration has been observed each year without exception. Record-high

emigration rates recorded in 2010 reflect both the aftermath of the 2009 crisis and limited state capacity to cope with economic challenges as well as revision of migration statistics for the previous year.

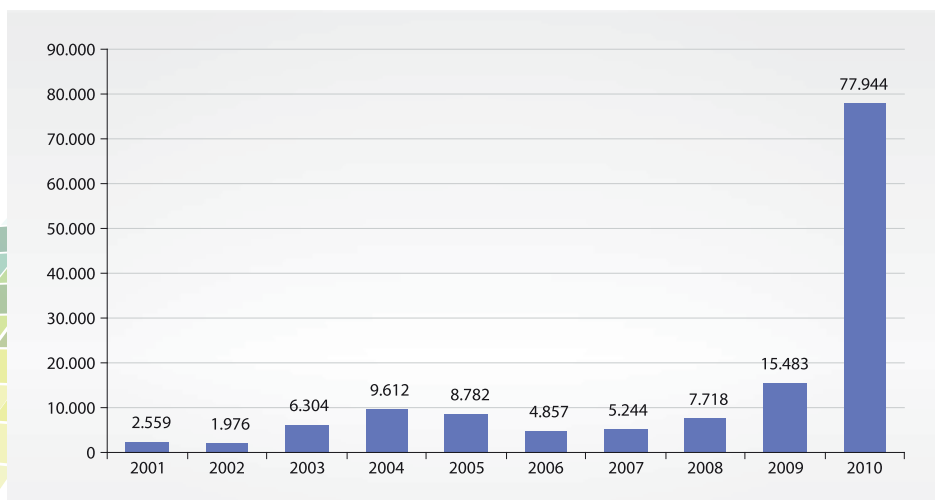
**Table 2.** International migration of Lithuanian residents

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Immigration	4.694	5.110	4.728	5.553	6.789	7.745	8.609	9.297	6.487	5.213
Emigration	7.253	7.086	11.032	15.165	15.571	12.602	13.853	17.015	21.970	83.157
Net migration	-2.559	-1.976	-6.304	-9.612	-8.782	-4.857	-5.244	-7.718	-15.483	-77.944

Source: Statistics Lithuania

### Number of emigrants (net migration)

Source: Statistics Lithuania

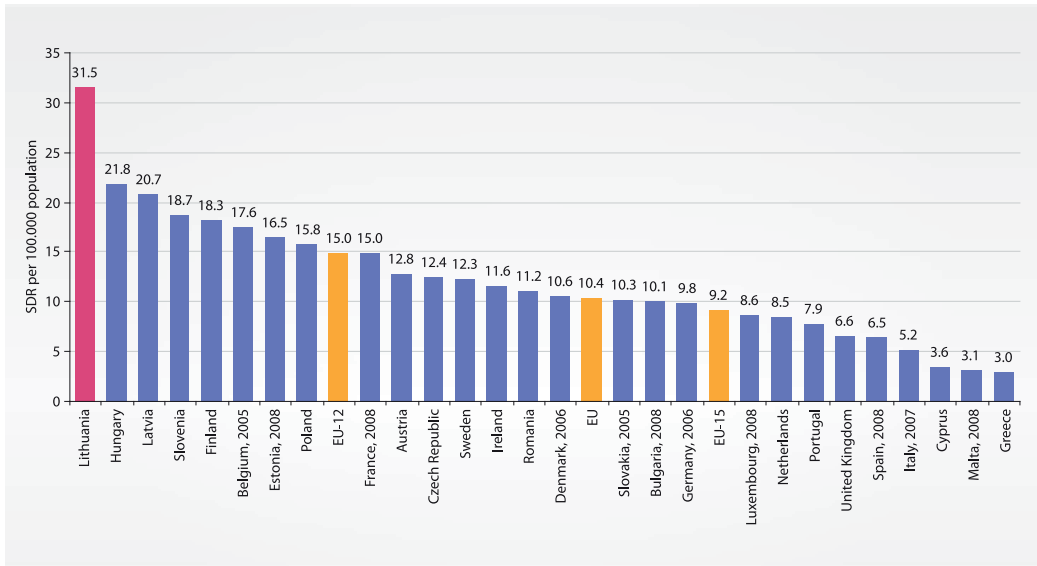


# Suicide

The suicide rate in Lithuania declined compared to 1996 when this figure was the highest in the entire period of independence. However, in the last decade, Lithuania failed to get rid of its position as one of the world's „leaders“ in terms of the number of suicides.

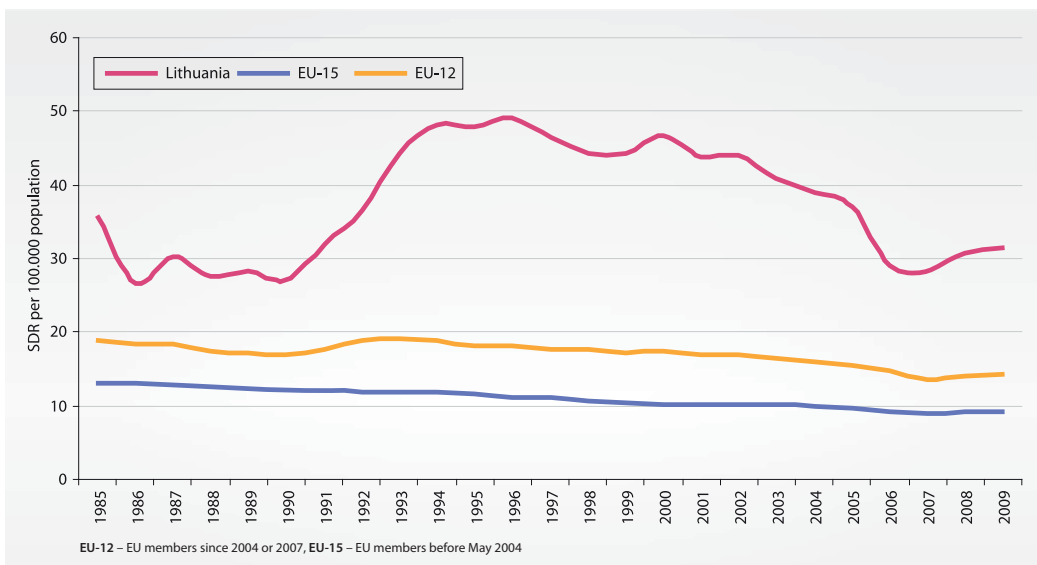
SDR per 100.000 population. Suicide. Comparison with EU Member States, 2009

Source: WHO



SDR per 100.000 population. Suicide. Comparison with EU Member States

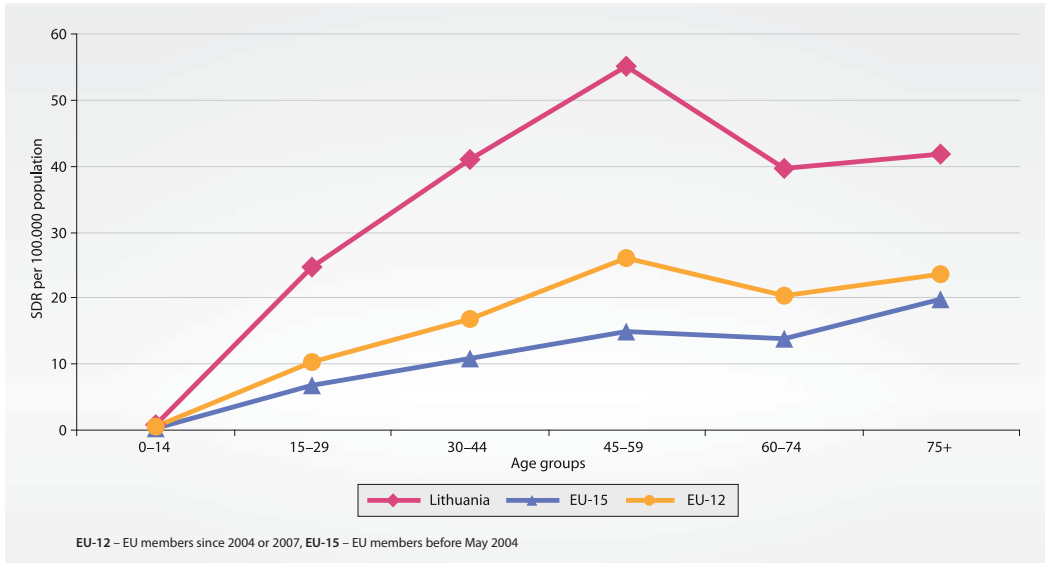
Source: WHO



The problem is not only that the suicide rate is very high in Lithuania but also that young and able-bodied people commit suicide.

### SDR per 100.000 population by age group. Suicide, 2009

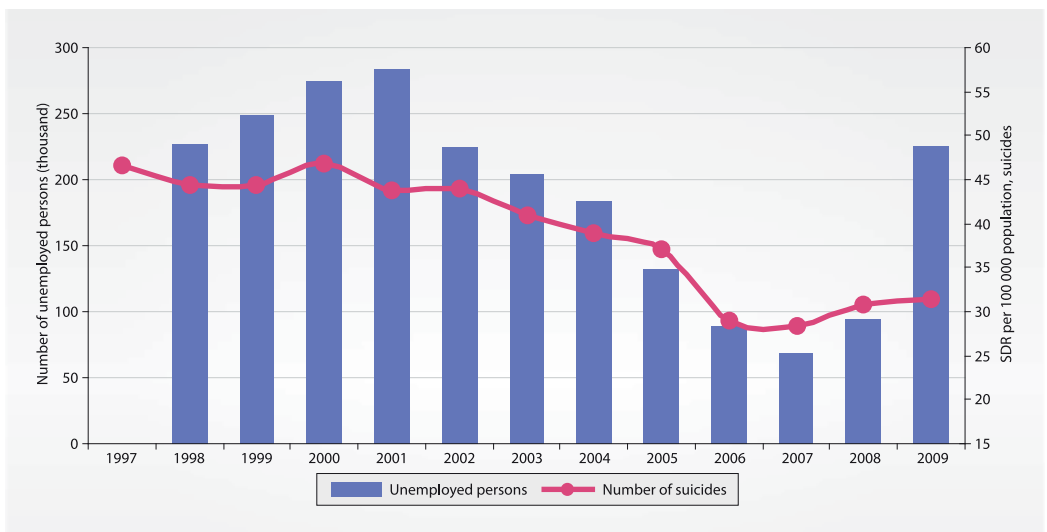
Source: WHO



Suicide rates are closely related to social security issues and unemployment.

### Comparison of the number of unemployed persons and suicides in Lithuania

Sources: WHO, Statistics Lithuania



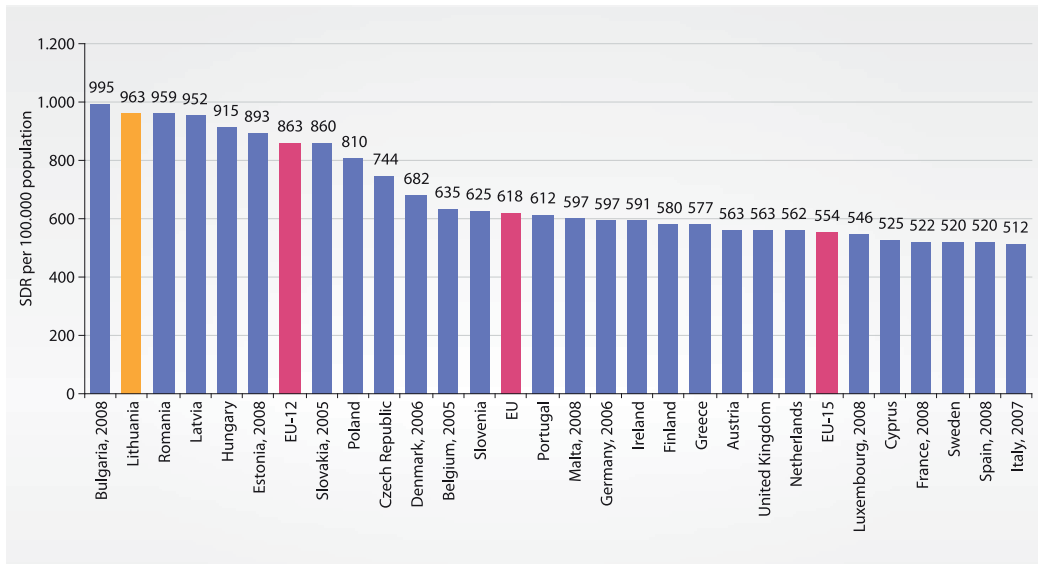
## All causes of death

In 2009, the mortality rate for all causes of death in Lithuania stood at 963 per 100.000 population and not only exceeded the average of the new EU Member States but was also one

of the highest among all EU Member States (only Bulgaria had a higher rate). According to data available to Statistics Lithuania, 42.120 people died in Lithuania in 2010.

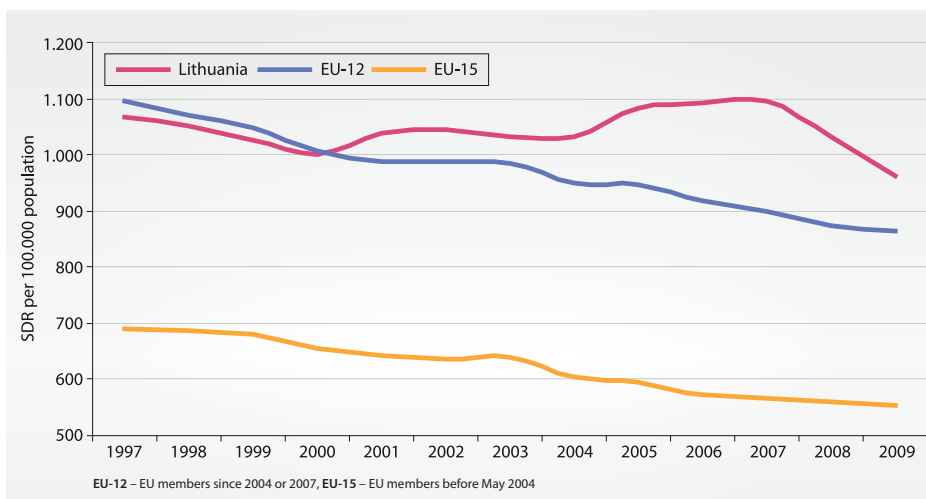
### SDR per 100.000 population. All causes of death. Comparison with EU Member States, 2009

Source: WHO



It should be noted that the overall standardised mortality rate in Lithuania is not only the worst in the European Union but is

also very different from the corresponding rates of EU Member States in terms of its variation. Unlike in the European Union where



SDR per 100.000 population. All causes of death. Comparison with EU Member States

Source: WHO

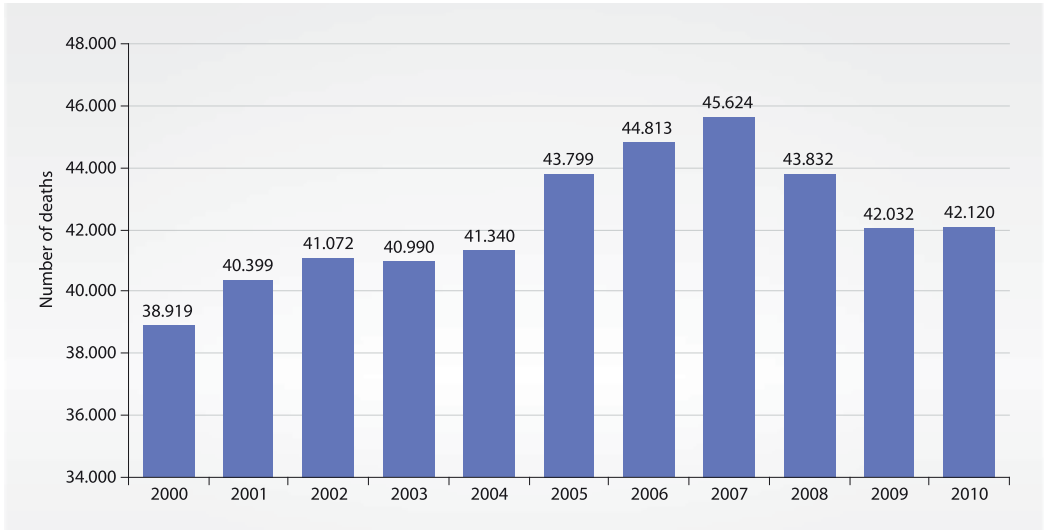
EU-12 – EU members since 2004 or 2007, EU-15 – EU members before May 2004

a reduction in the standardised mortality rate has been observed for a long time already, in Lithuania, this ratio started to grow from 2001

to reach 1.095 per 100.000 population in 2007. It was only in 2008 that mortality rates started to decline in Lithuania.

### Number of deaths. All causes of death

Source: Statistics Lithuania

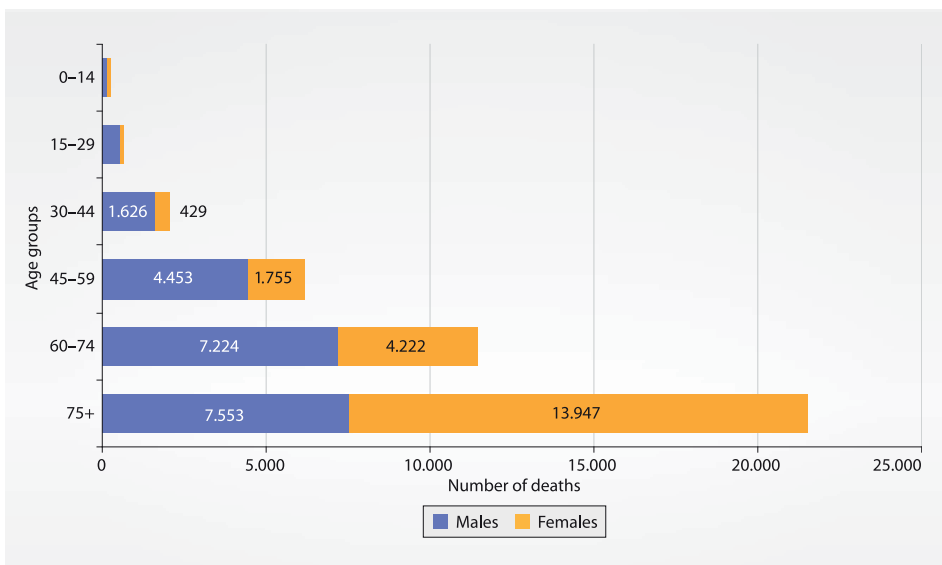


As can be seen from the figure below, the overall mortality rates differ considerably not only by age but also by sex. Approximately two-thirds of Lithuanian men die before the

age of 75 years (13,983 deaths in 2010), while the majority of women die at an age above 74 years (13,947 deaths in 2010).

### Number of deaths by sex per 1,000 population, 2010

Source: Statistics Lithuania



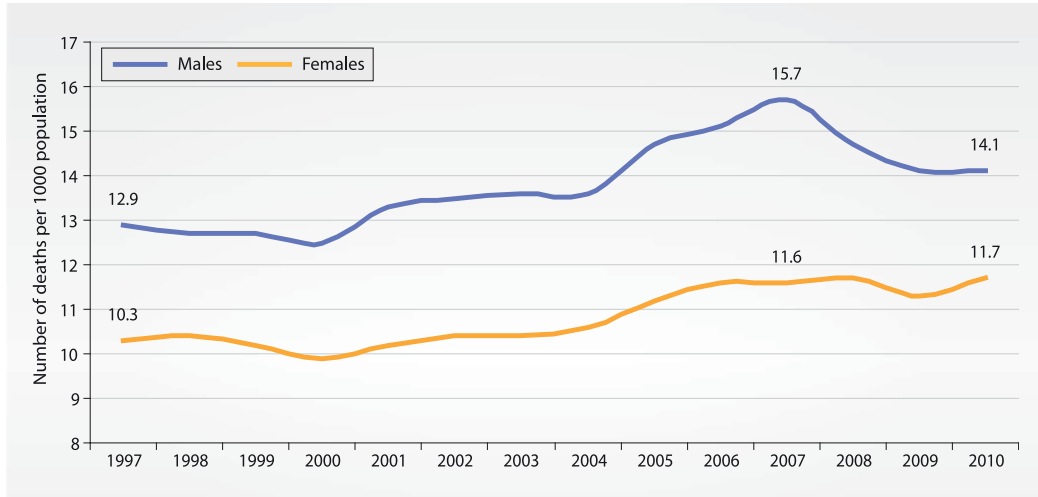


There was virtually no decrease in the difference between the male and female mortality rates in 1997–2010 (the difference

made up approx. 2.5 per 1.000 population). In 2007, the difference between the mortality rates even increased to 4.1 per 1.000 population.

### Number of deaths by sex per 1.000 population

Source: Statistics Lithuania

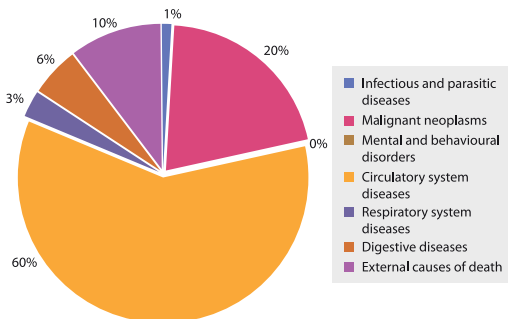


People older than 60 years accounted for over three-quarters of deaths in 2010. The main causes of death included: circulatory system diseases (60% of all causes of death), malignant neoplasms (20%), external causes of death (approx. 10%) and digestive system diseases (6%). Since 2003, digestive system diseases have been a more frequent cause of death than respiratory system diseases in Lithuania. Before this point of time,

respiratory system diseases ranked fourth among other causes of death in terms of the number of deaths; according to data available to the WHO, respiratory system diseases have been and remain the fourth most common cause of death in the entire European Union. Only in the new EU Member States the numbers of deaths caused by respiratory and digestive system diseases are similar.

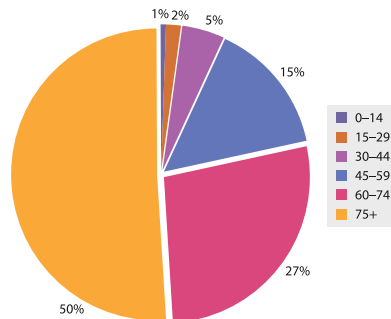
### Structure of mortality by cause of death, 2010

Source: Statistics Lithuania



### Structure of mortality by age, 2010

Source: Statistics Lithuania

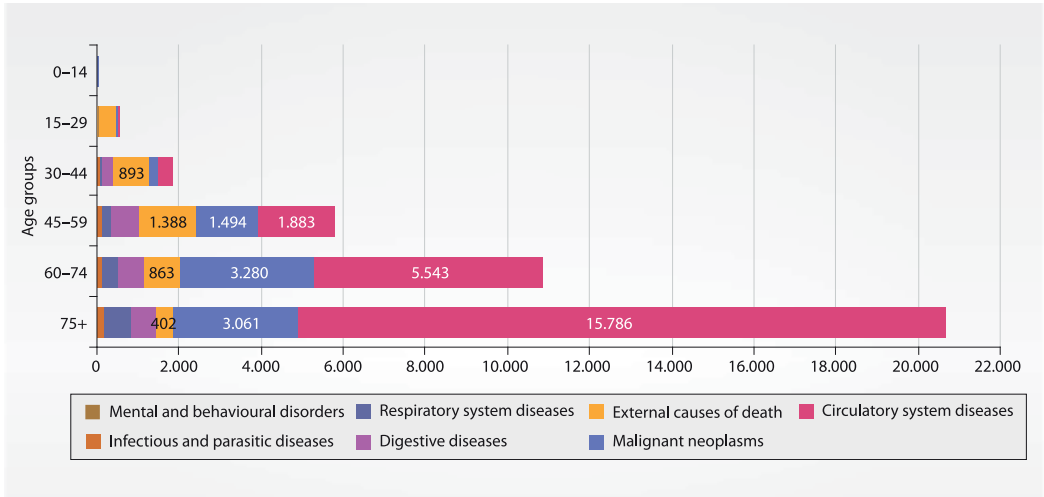


Two-thirds of the deaths caused by circulatory system diseases occur at an age above 74 years, three-quarters of the deaths caused by malignant neoplasms occur at an

age above 60 years, and almost 70% of the deaths caused by external causes of death occur before the age of 60 years.

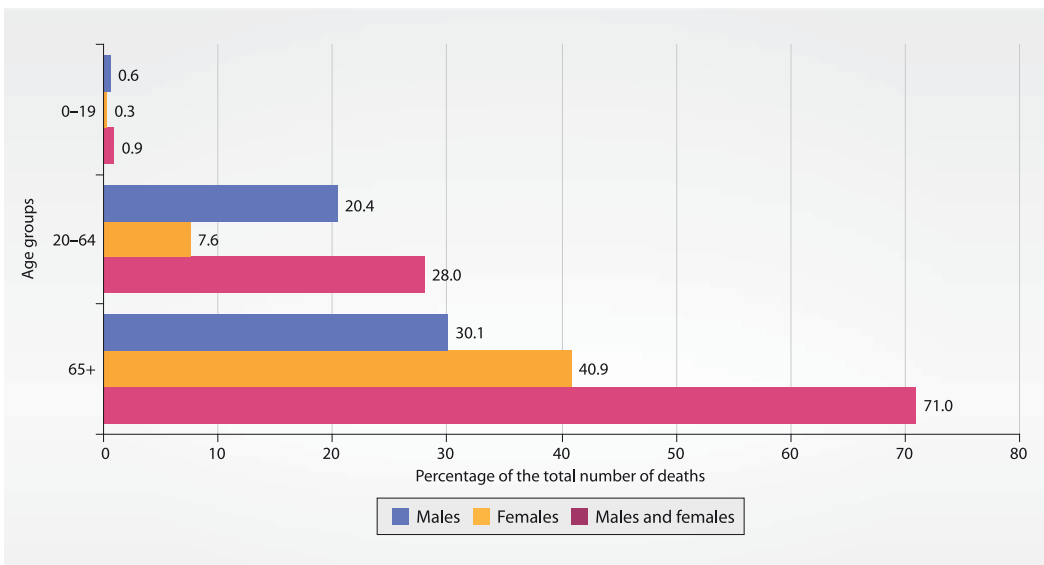
### Number of deaths by age and cause of death

Source: Statistics Lithuania



### Number of deaths in the working and non-working age population, 2010

Source: Statistics Lithuania



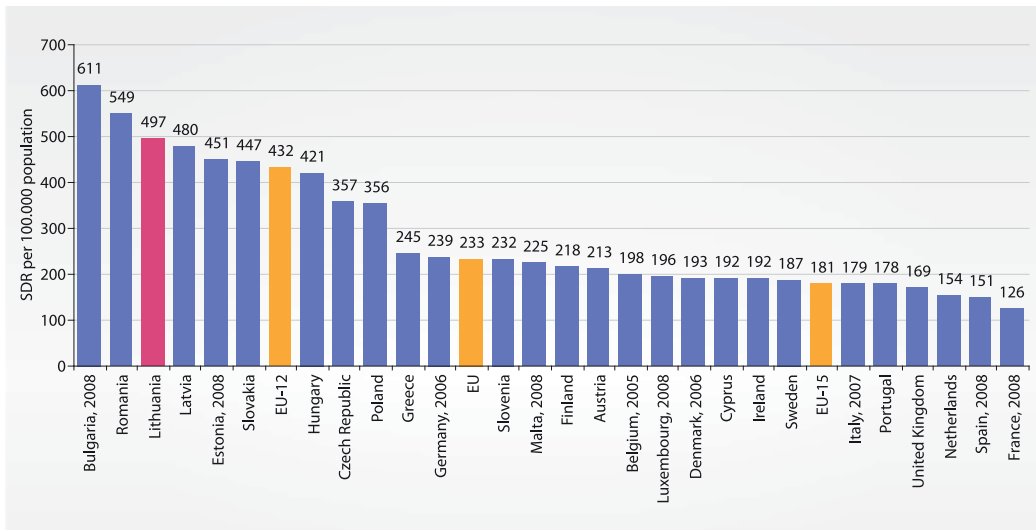
## Circulatory system diseases

Circulatory system diseases have been and remain the main cause of death both in Lithuania and other EU Member States. In 2009, Lithuania's standardised mortality rate for cardiovascular diseases was one of the worst

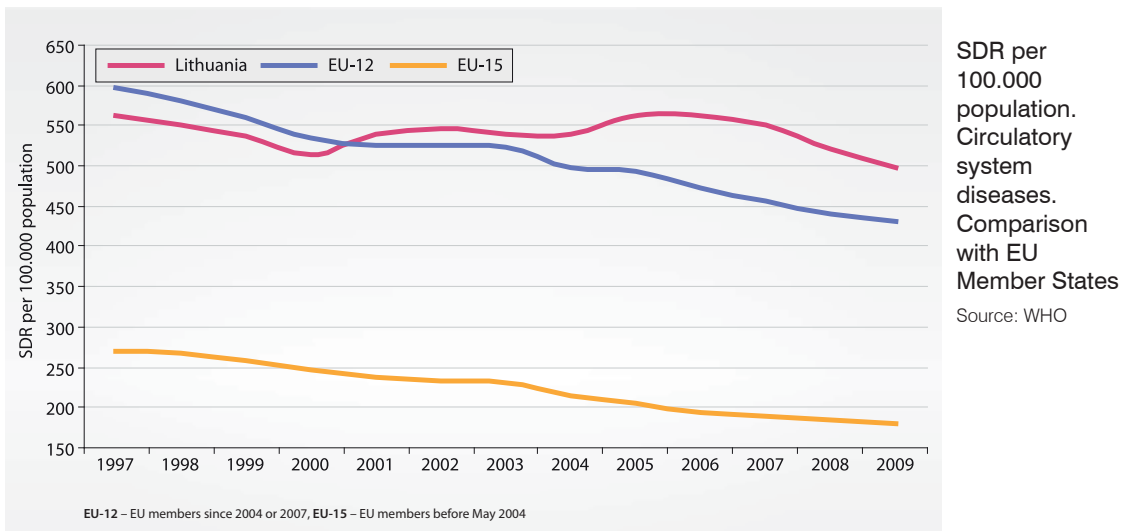
in the European Union (a worse situation was only in Romania and Bulgaria). According to data available to Statistics Lithuania, 23,627 people (56.1% of all deaths) died from circulatory diseases in Lithuania in 2010.

SDR per 100,000 population. Circulatory system diseases. Comparison with EU Member States, 2009

Source: WHO



The standardised mortality rate remained virtually unchanged in the period 1997–2009.



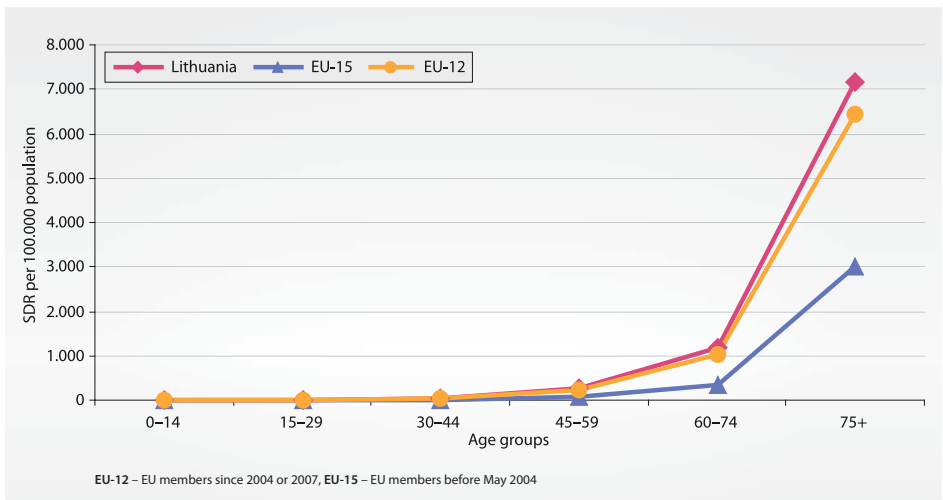
The dynamics of mortality caused by circulatory system diseases is virtually the same as that of life expectancy (the indicators improved in 1997–2000 and 2008–2009, did not change in 2001–2003 and worsened in 2004–2007). Trends in mortality caused by circulatory system diseases in Lithuania significantly differed from the EU average. The gap between the mortality rates of Lithuania and EU-27, EU-15 or EU-12 constantly widened to Lithuania’s disadvantage.

The majority of patients with circulatory system diseases are older than 45 years, and

more than 75% of those who died from these diseases were older than 60 years. Lithuania’s standardised mortality rates by age group are similar to EU-12 average rates, but the gap between the respective rates in Lithuania and EU-15 is quite large. Lithuania’s mortality rates for these diseases exceed the EU-15 average the most in the 30–44 year age group, with the highest number of deaths recorded among persons aged over 74 years. The number of deaths caused by circulatory system diseases in this age group in Lithuania is almost 2.4 times higher than the respective EU-15 average.

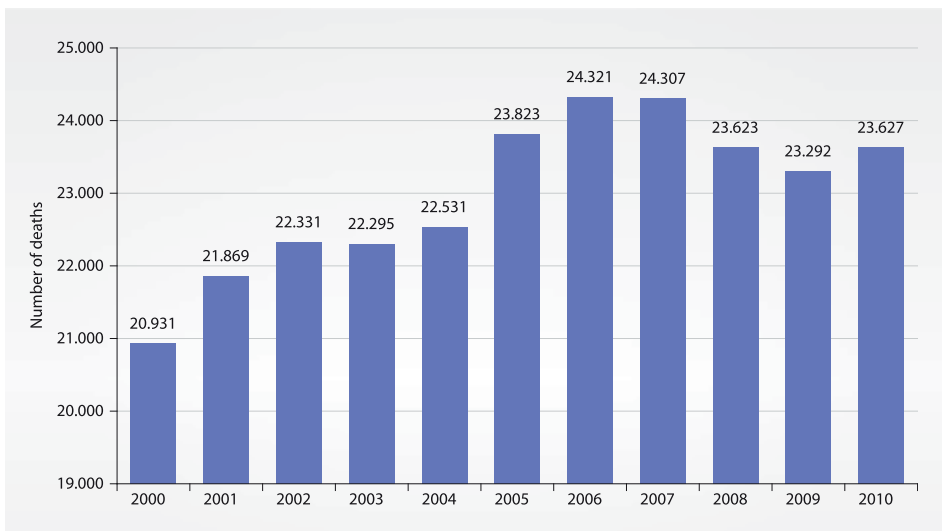
SDR per 100.000 population by age group. Circulatory system diseases, 2009

Source: WHO



Number of deaths. Circulatory system diseases

Source: Statistics Lithuania



Circulatory diseases determine around a quarter of primary adult disability cases and are a frequent reason for incapacity to work and related economic losses. More than 20% of adults suffer from cardiovascular diseases in Lithuania. In both absolute and relative terms,

the hospitalisation rate for circulatory diseases in Lithuania is one of the highest in Europe.

Likely reasons for the significant rise in the mortality rate in 2005–2007 include: increased alcohol consumption and socio-economic inequality as well as overweight.

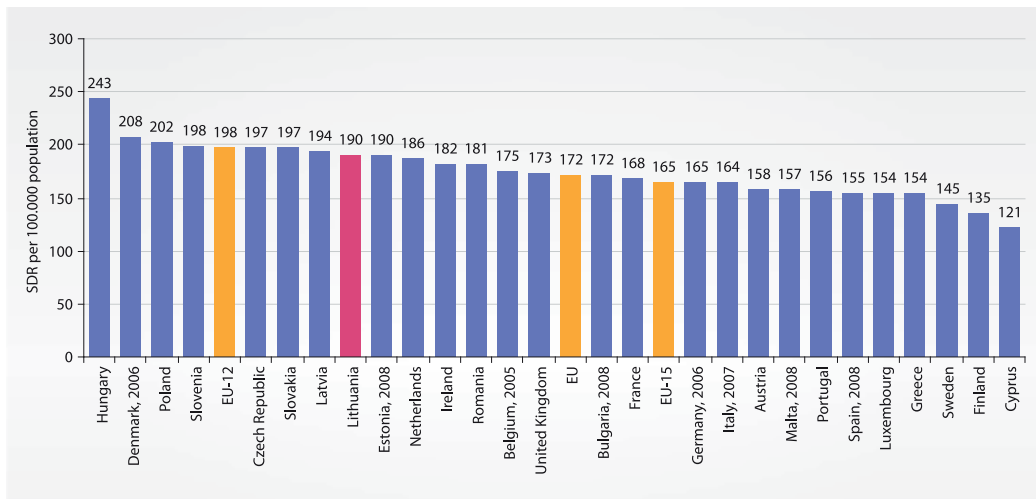
## Oncological diseases

Malignant neoplasms are the second most common cause of death. The highest number of deaths is caused by lung, colon, stomach and breast cancer. In 2009, Lithuania's standardised mortality rate for oncological

diseases was lower than the EU-12 average but higher than the EU-15 average. According to data available to Statistics Lithuania, 8.110 people (19.3% of all deaths) died of malignant neoplasms in Lithuania in 2010.

SDR per 100.000 population. Oncological diseases. Comparison with EU Member States, 2009

Source: WHO

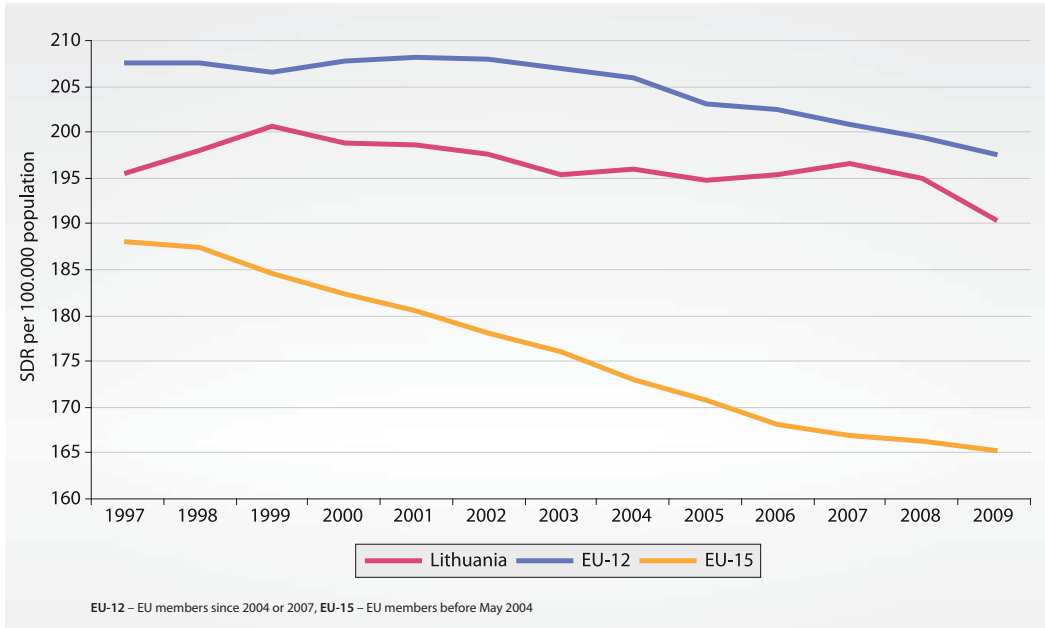


Trends in the mortality rate for oncological diseases in Lithuania slightly differed from the EU-12 average (particularly in 2006–2008) and differed quite substantially from the EU-15

average. The gap between the mortality rates of Lithuania and EU-15 constantly widened to Lithuania's disadvantage.

## SDR per 100.000 population. Oncological diseases. Comparison with EU Member States

Source: WHO

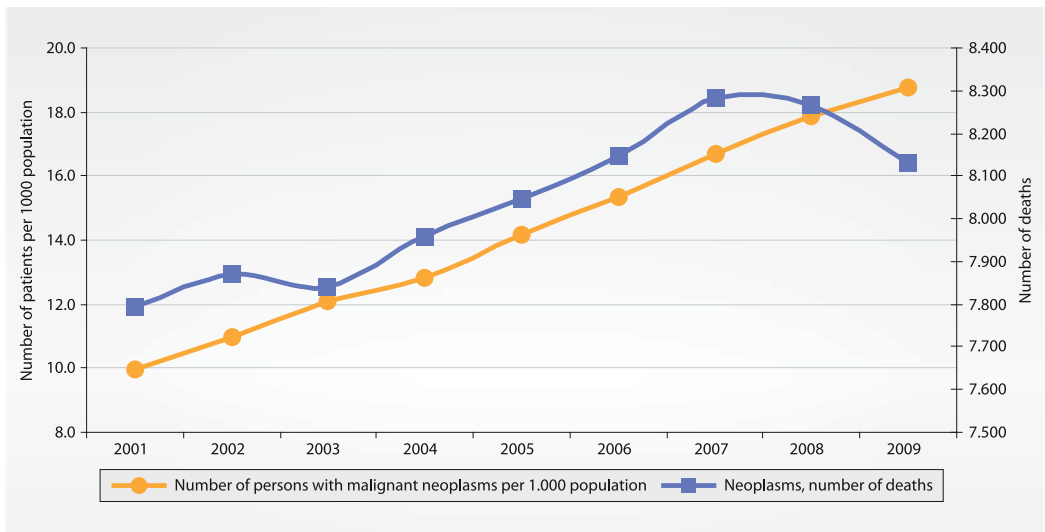


In 1997–2008, the number of patients with oncological diseases and the number of deaths caused by these diseases continued to grow;

in 2008, the mortality rate stabilised and started to go down, while the morbidity rate increased.

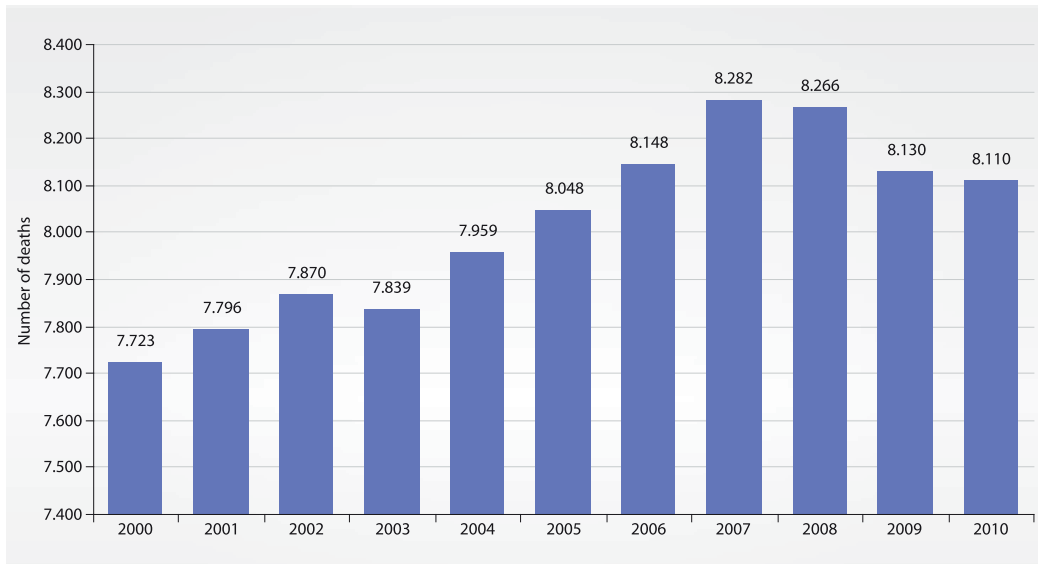
## Number of malignant neoplasm cases and deaths

Sources: Health Statistics Lithuania, Statistics Lithuania



## Number of deaths. Malignant neoplasms

Source: Statistics Lithuania



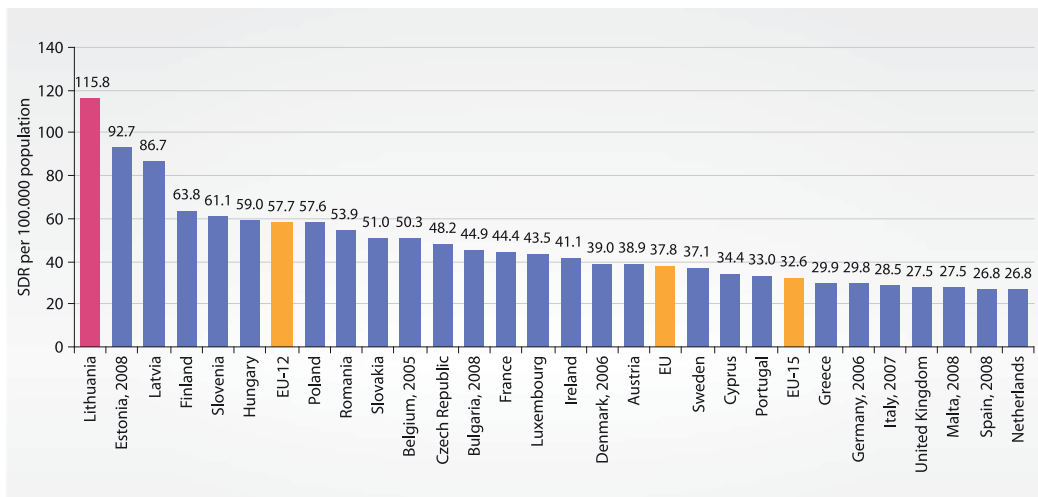
## External causes of death

In 1997–2009, there was a tendency for the standardised mortality rate for external causes of death to decline in Lithuania, but the gap between it and EU Member States did not narrow over this period. In 2009, the

standardised mortality rate for external causes of death in Lithuania was the worst in the European Union. According to data available to Statistics Lithuania, 4,045 people died due to external causes of death in Lithuania in 2010.

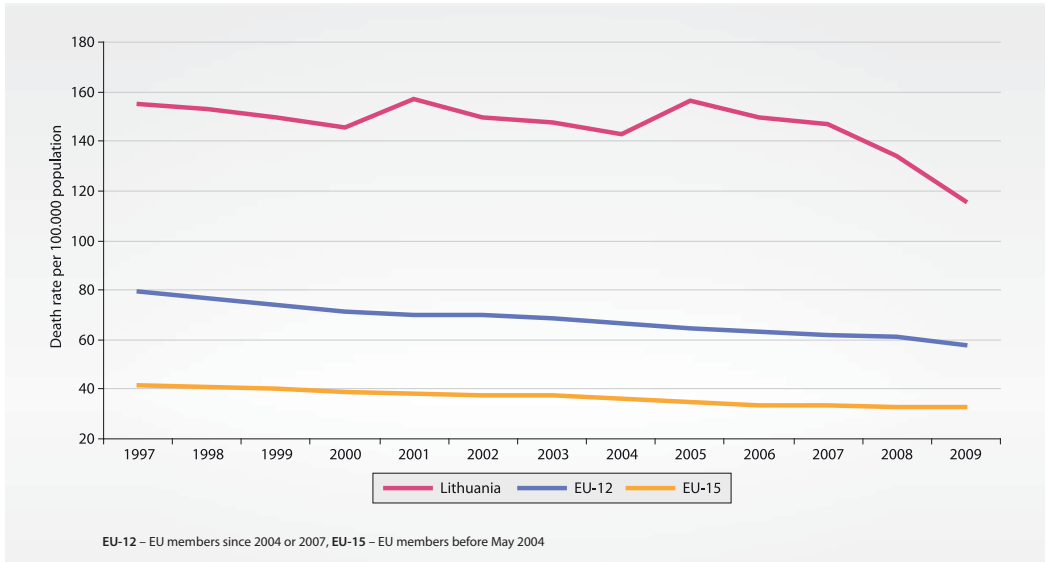
## SDR per 100,000 population. External causes of death. Comparison with EU Member States, 2009

Source: WHO



## SDR per 100.000 population. External causes of death. Comparison with EU Member States

Source: WHO



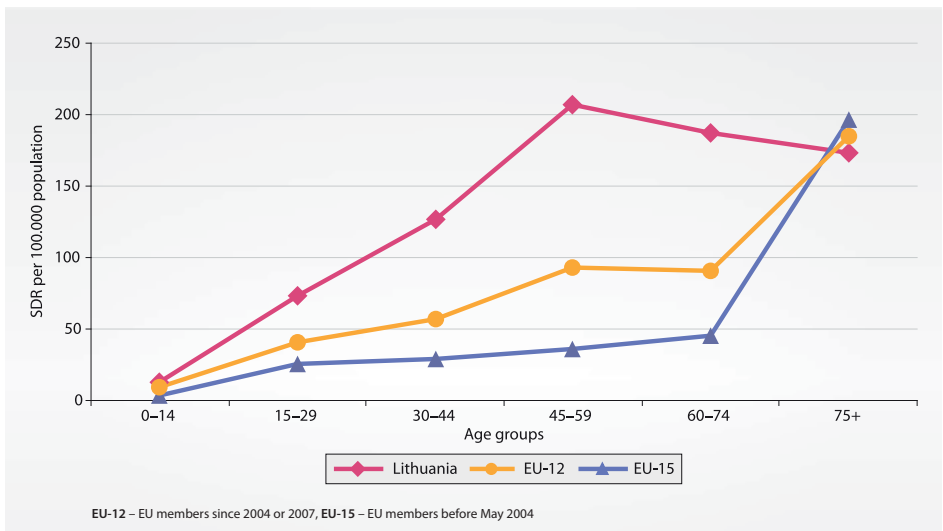
In 2010, suicides (1.018 cases) accounted for the majority of deaths in the group of external causes of death, followed by deaths due to exposure to intense natural cold (389), deaths as a result of injuries sustained in traffic accidents (372 cases), accidental alcohol poisoning (310 cases), falls (305 cases) and accidental drowning (319 cases).

It should be noted that mortality due to external causes of death in Lithuania

substantially differs from EU Member States not only in the number of deaths but also in the age structure of the dead. Unlike the EU average, the highest risk of deaths due to external causes of death in Lithuania is in the 30–74 year age group, with the highest incidence of injuries observed in the age group under 65 years. In Lithuania, 90% of deaths due to external causes of death occur before the age of 75 years.

## SDR per 100.000 population by age group. External causes of death, 2009

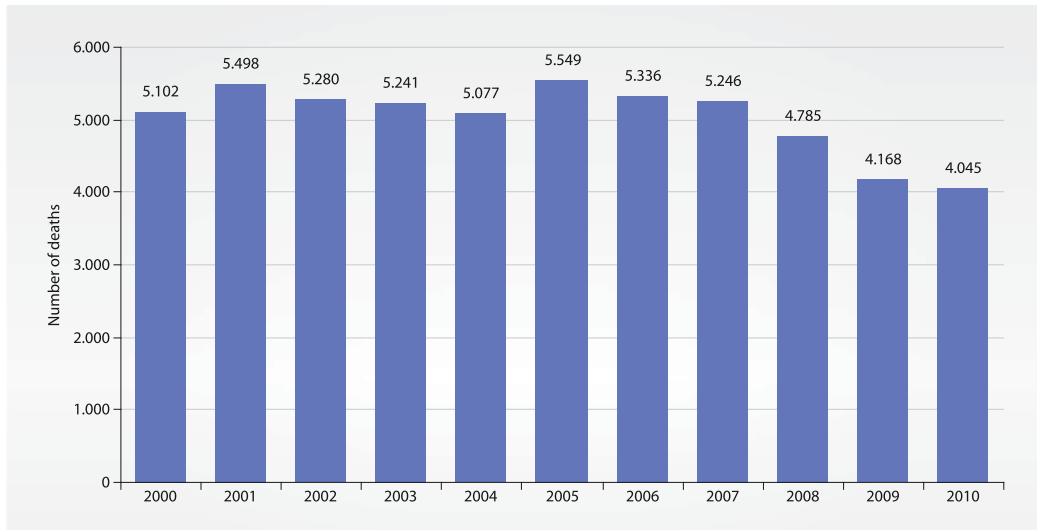
Source: WHO





## Number of deaths. External causes of death

Source: Statistics Lithuania



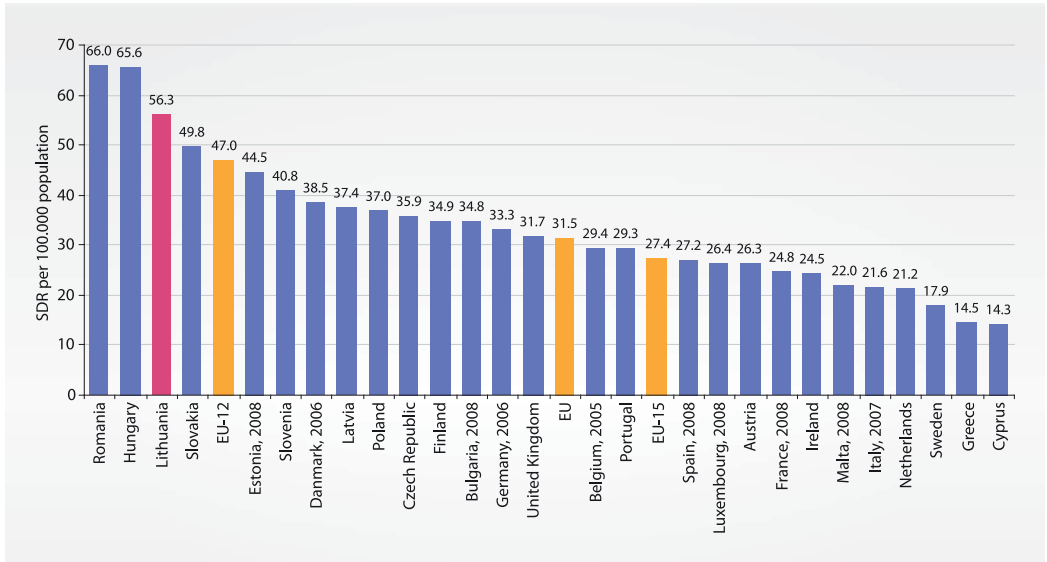
## Digestive system diseases

As already mentioned above, mortality from digestive diseases got ahead of mortality from respiratory diseases and stayed in the fourth place in the structure of mortality from certain diseases in Lithuania in recent years. The majority of deaths due to digestive system diseases can be prevented. In 2009, Lithuania ranked third from the end among all EU Member States in terms of the standardised

mortality rate for digestive system diseases (the situation was worse only in Romania and Hungary). In 1997–2009, the number of deaths caused by digestive diseases in Lithuania increased 1.8 times and in 2009 exceeded the EU-12 average by almost 20%. According to data available to Statistics Lithuania, 2,217 people died from digestive system diseases in Lithuania in 2010.

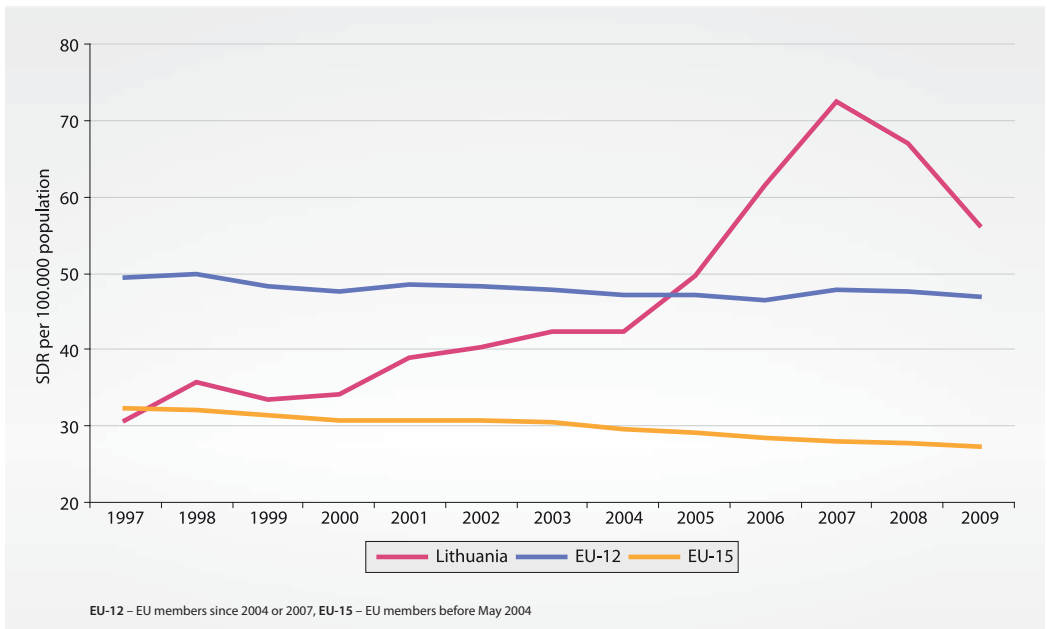
## SDR per 100.000 population. Digestive system diseases. Comparison with EU Member States, 2009

Source: WHO



## SDR per 100.000 population. Digestive system diseases. Comparison with EU Member States

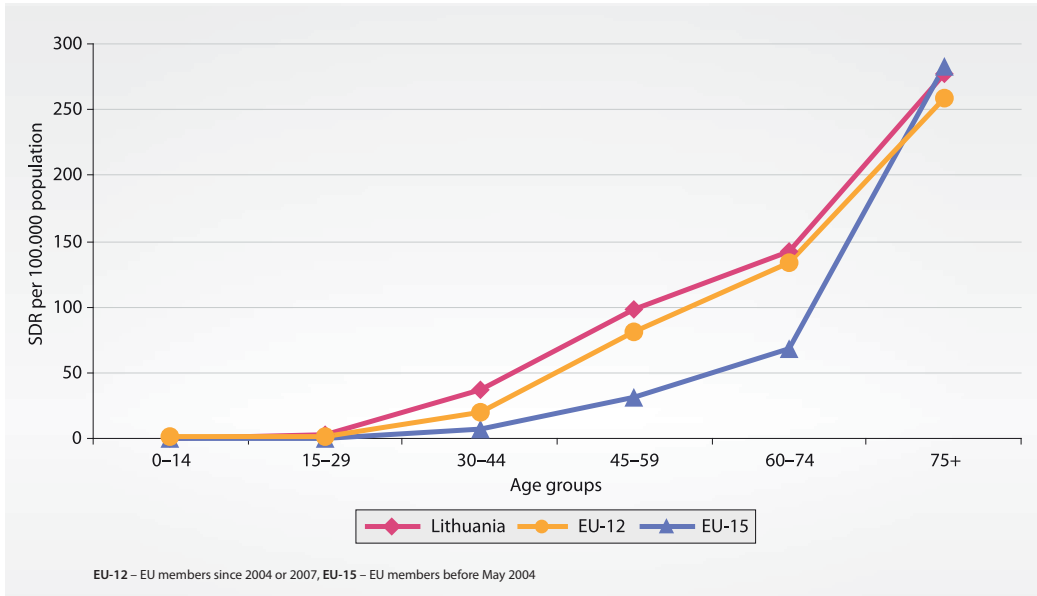
Source: WHO



As shown in the figure below, unlike the EU-15 average, a relatively high number of deaths caused by such diseases in Lithuania and EU-12 occur in the 40–74 year age group.

## SDR per 100.000 population by age group. Digestive system diseases, 2009

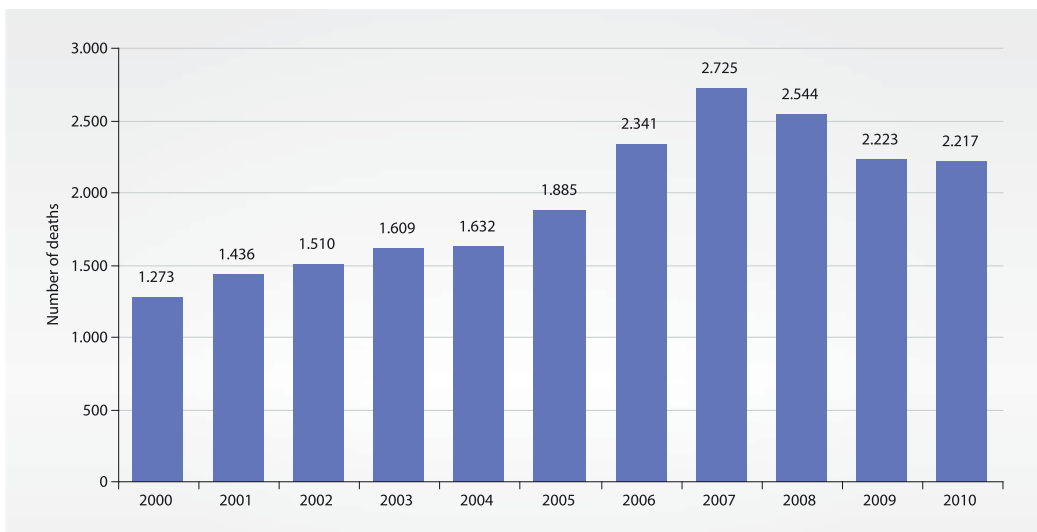
Source: WHO



The most common fatal diseases include: gastric, duodenal and peptic ulcers, alcoholic liver disease, liver cirrhosis and fibrosis. Mortality from diseases of the digestive system is quite closely correlated with alcohol consumption rates. In addition, there is a strong statistical relationship with male overweight and obesity rates.

## Number of deaths. Digestive system diseases

Source: Statistics Lithuania



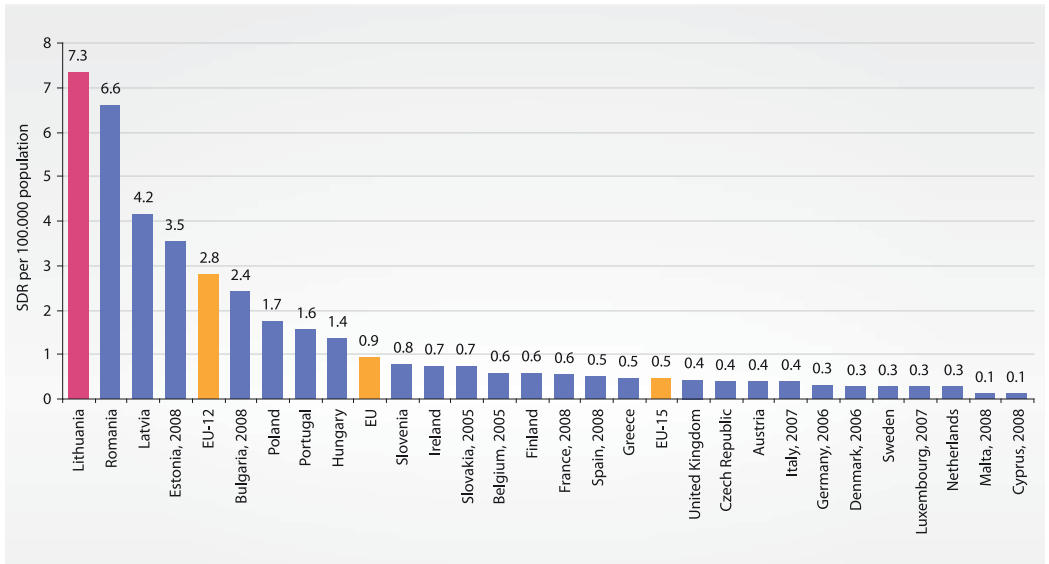
# Tuberculosis

In 1997–2009, Lithuania succeeded in reducing the standardised mortality rate for tuberculosis by more than 37%. However, Lithuania’s standardised mortality rates for tuberculosis remain the worst in the European Union. The gap between Lithuania

and EU-15 increased during almost the entire period discussed. In 2009, there was a 15-fold difference between Lithuania’s rate and the EU-15 average. According to data available to Statistics Lithuania, 220 people died from tuberculosis in Lithuania in 2010.

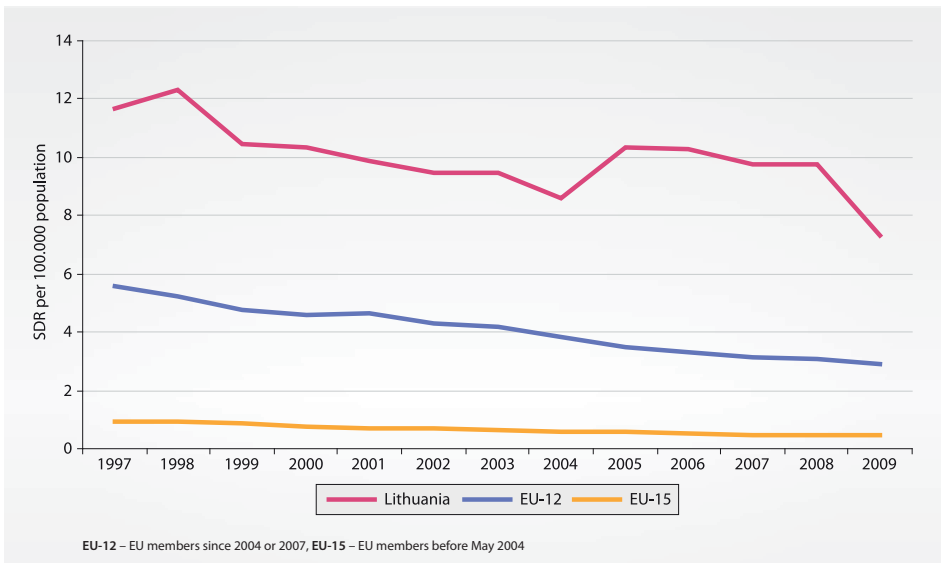
SDR per 100.000 population. Tuberculosis. Comparison with EU Member States, 2009

Source: WHO



SDR per 100.000 population. Tuberculosis. Comparison with EU Member States

Source: WHO



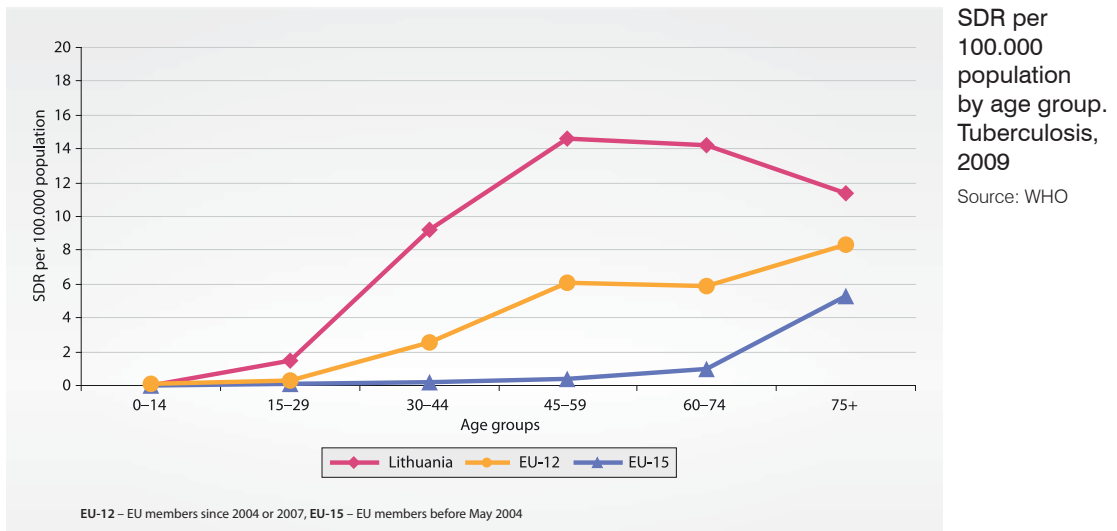
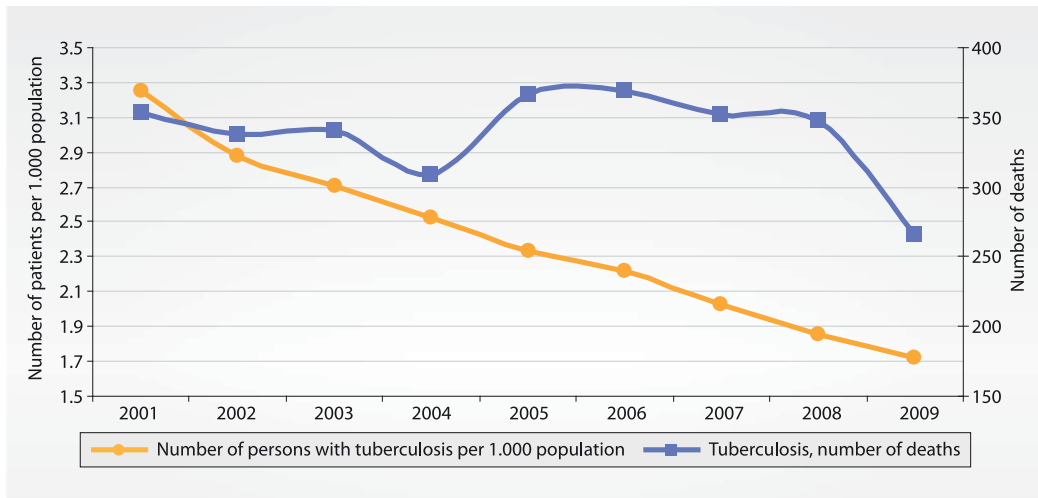
Mortality rates for tuberculosis significantly increased in 2004–2008. It is unlikely that this was influenced by changes in morbidity rates only: both the number of new cases and the number of patients decreased throughout this period.

A comparison of 2009 data on mortality from tuberculosis by age group with the respective EU average rates has shown that the biggest difference was observed in the 30–74 year age group. In the 45–59 year age group, there

was a 35-fold difference between Lithuania’s mortality rate for tuberculosis and the EU-15 average. A comparison of male mortality rates in the 45–59 age group in Lithuania with the respective EU-15 average rates in the same age group reveals an even greater difference: in 2009, Lithuania’s standardised mortality rate for tuberculosis was 40 times higher. According to available statistics, men aged 30–74 years are the main risk group of tuberculosis in Lithuania.

### Number of tuberculosis cases and deaths from tuberculosis

Source: Health Statistics Lithuania, Statistics Lithuania



# Diseases with health effects that cannot be measured precisely

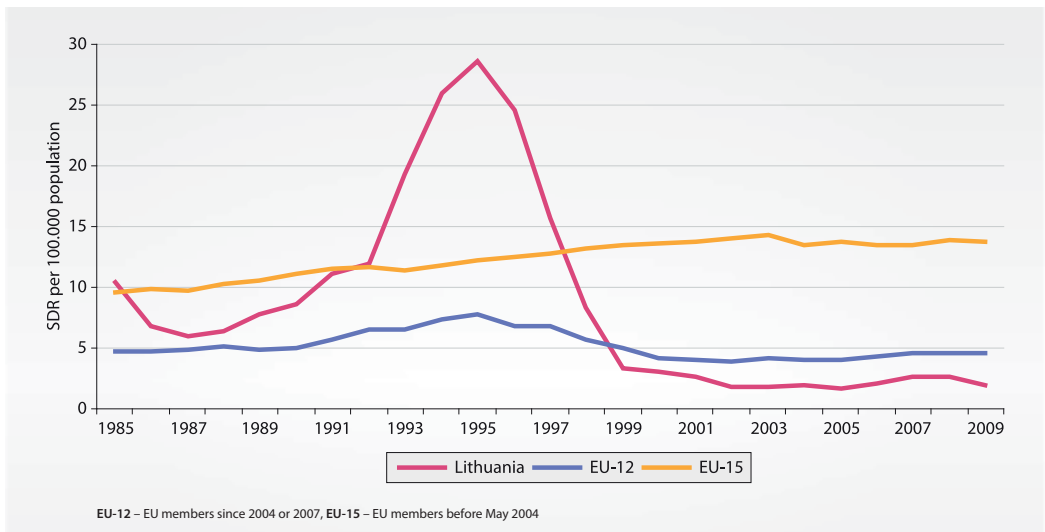
## Mental and behavioural disorders

It is quite difficult to evaluate the situation regarding mental disorders in Lithuania. According to WHO data, in 1997–2009, the number of cases of mental disorders increased by 13.56%, and the standardised mortality rate shrank 8 times. Morbidity rates in EU Member States increased over the same period. For example, in 1997–2009, the number of cases and the prevalence of these disorders in EU-12 increased by some 30% and the standardised mortality rate decreased only 1.5 times. A comparison of standardised mortality rates of Lithuania and EU-15 has produced an

even stranger gap: the average mortality rate for mental disorders in EU-15 is more than 7-fold higher than Lithuania's rate, and the average mortality rate for these disorders in persons aged over 74 years in EU-15 exceeds the respective Lithuanian rate more than 25 times. According to data available to Statistics Lithuania, 87 people died from mental and behavioural disorders in Lithuania in 2010. It is likely that the mortality rates for mental and behavioural disorders in Lithuania are underestimated.

### SDR per 100.000 population. Mental disorders. Comparison with EU Member States

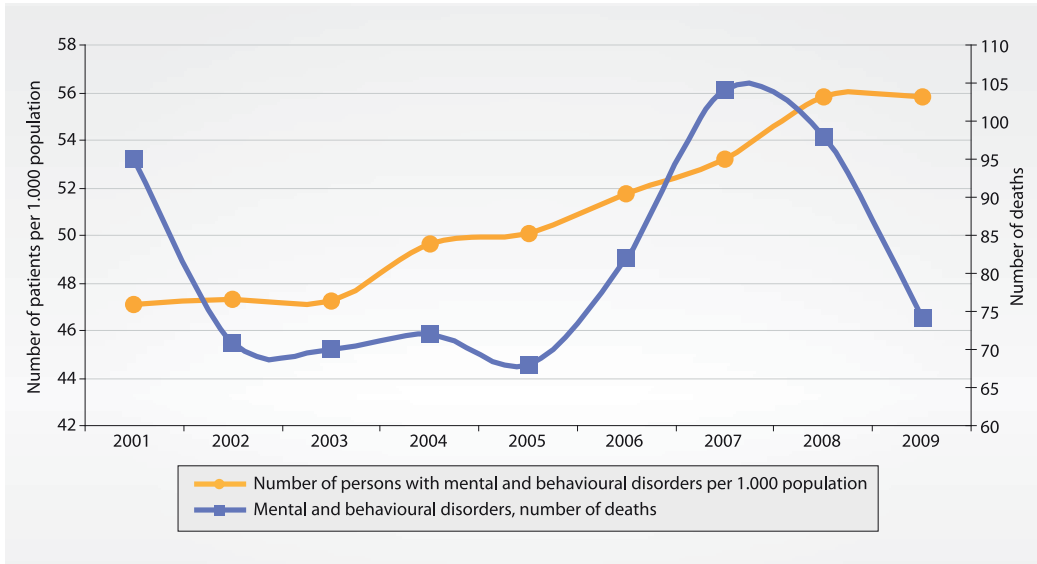
Source: WHO



It should be noted that it is hard to see a correlation between mental health-related morbidity and mortality in 2001–2009.

## Number of persons with mental and behavioural disorders per 1.000 population

Source: Health Statistics Lithuania, Statistics Lithuania



## Diabetes

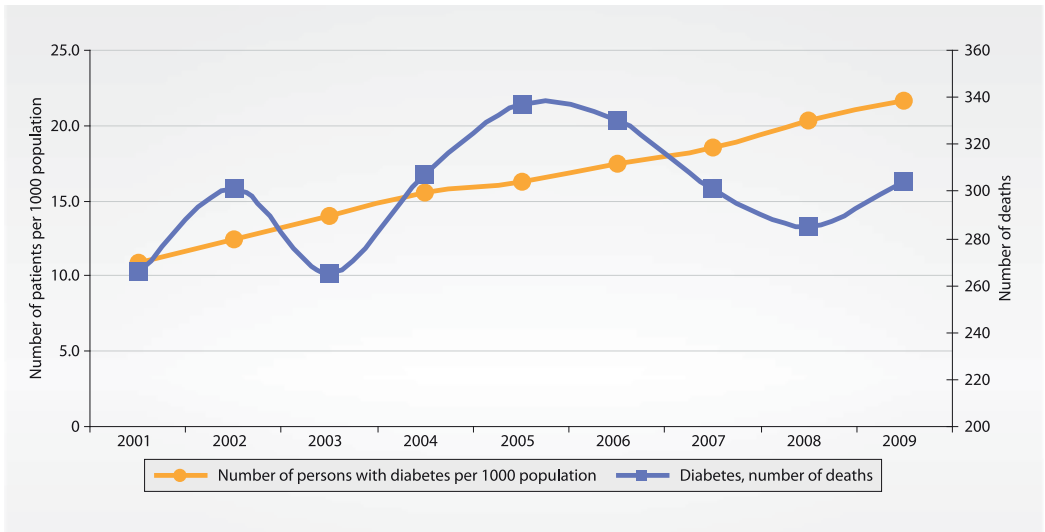
Diabetes mellitus is a chronic, widespread, still incurable but controllable disease with severe complications. Although Lithuania's standardised mortality rates for diabetes looked quite good compared to EU Member States (the mortality rates were more than 1.8-fold lower than those of EU-12 and EU-15), in 1997–2009, trends in diabetes morbidity showed a stable increase in the number of diabetes patients. With the country's economic well-being improving, the incidence and prevalence of diabetes is likely to continue to grow in the future. According to data available to Statistics Lithuania, 304 people died from

diabetes in Lithuania in 2009. According to health statistics, in 2001–2009, the number of diabetes patients nearly doubled and the number of deaths caused by the disease rose by 25%. In addition, compared with the EU-15 average by age group, the number of diabetes-related deaths among people aged over 75 years in Lithuania in 2009 was approximately 3 times lower.

It is likely that the mortality rates for diabetes in Lithuania are relatively low not only due to effective treatment of the disease but also because of an underestimated extent of mortality from this disease.

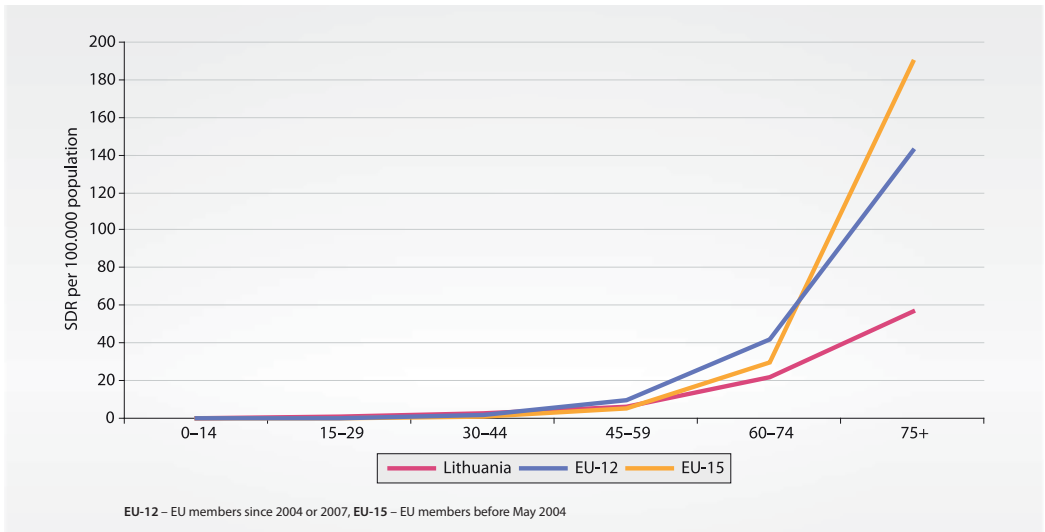
## Number of diabetes cases and deaths

Sources: Health Statistics Lithuania, Statistics Lithuania



## SDR per 100.000 population by age group. Diabetes, 2009

Source: WHO

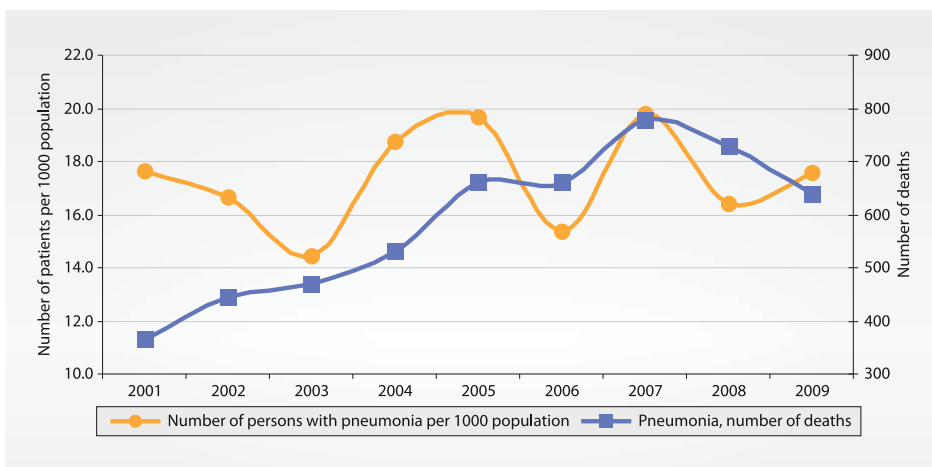
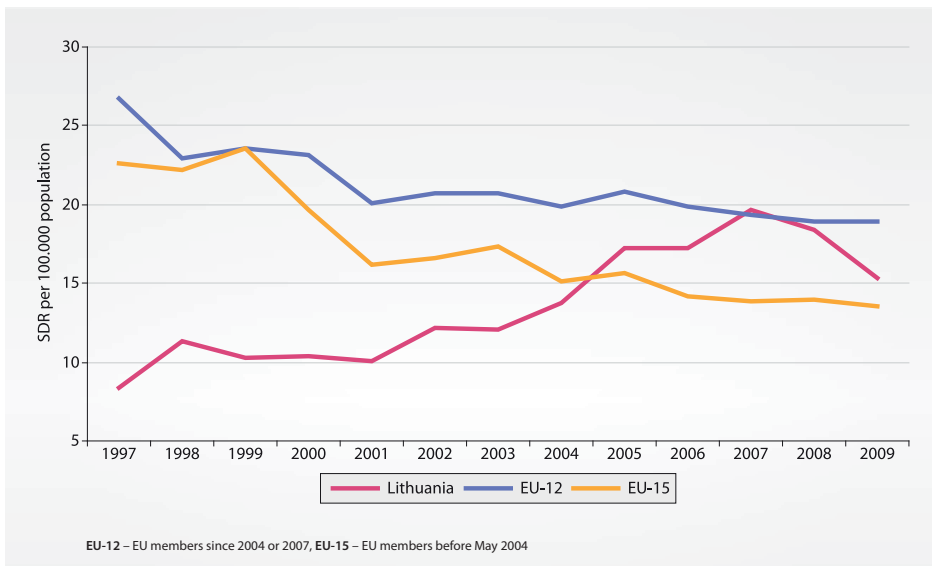




# Pneumonia

According to WHO data, from 1997 to 2009, the standardised mortality rate for pneumonia in Lithuania increased 1.8 times and was similar to the EU-12 average in 2007–2008. In 2009, it started to decline. Nevertheless, Lithuania's mortality rates for pneumonia are still higher than the EU-15 average. According to data available to Statistics Lithuania, 640 people died from pneumonia in Lithuania in 2009. Based on health statistics, in 2001–2009, the number of pneumonia patients remained

almost unchanged, while the number of deaths increased more than 1.6 times. In addition, compared with the respective average rate of EU-15 by age group, in 2009, the number of deaths from pneumonia among people older than 74 years in Lithuania was almost twice lower. It is likely that the extent of mortality from this disease in Lithuania has been underestimated (at least in the period before 2003).



## The disabled

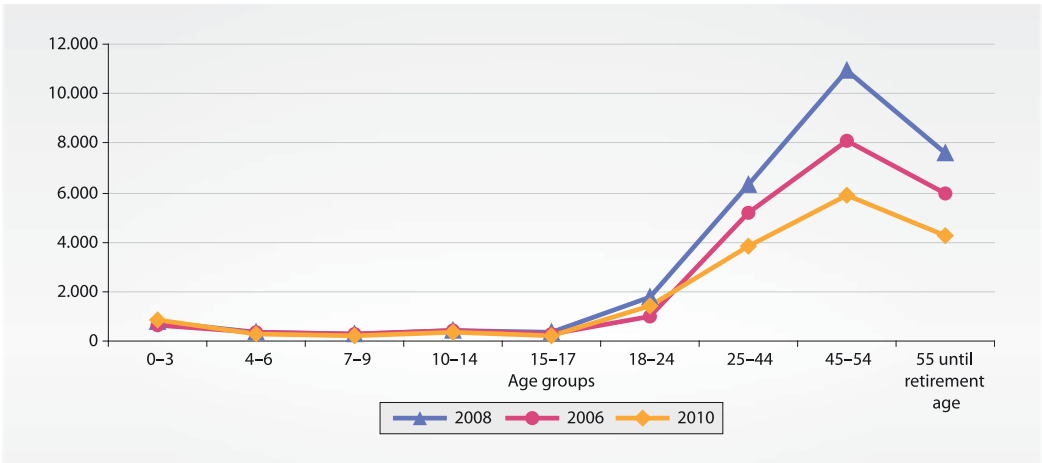
High morbidity rates and a high number of accidents have a strong impact on disability rates. More than 17,000 new invalidity/disability cases were recorded in Lithuania in 2010. Marked annual variation in the number

of new disability cases indicates limited state capacity to evaluate this problem.

Social policy changes have a very significant impact on the keeping of records of the disabled working age population.

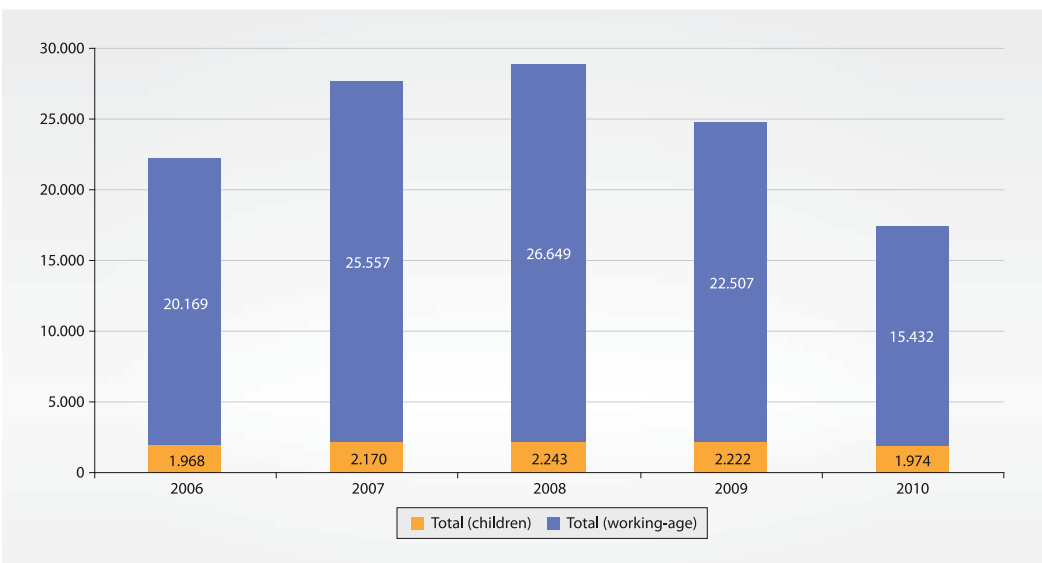
### New disability cases by age group

Source: Statistics Lithuania



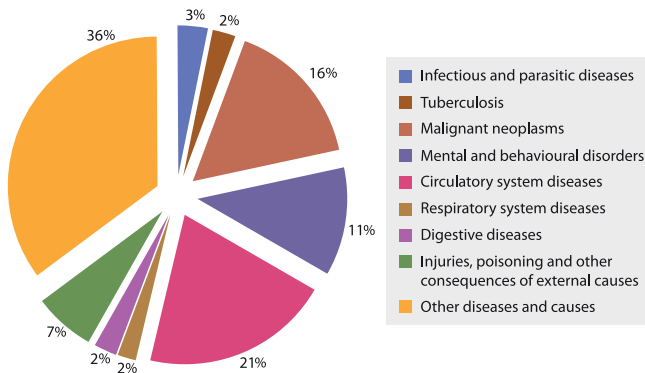
### New disability cases

Source: Statistics Lithuania

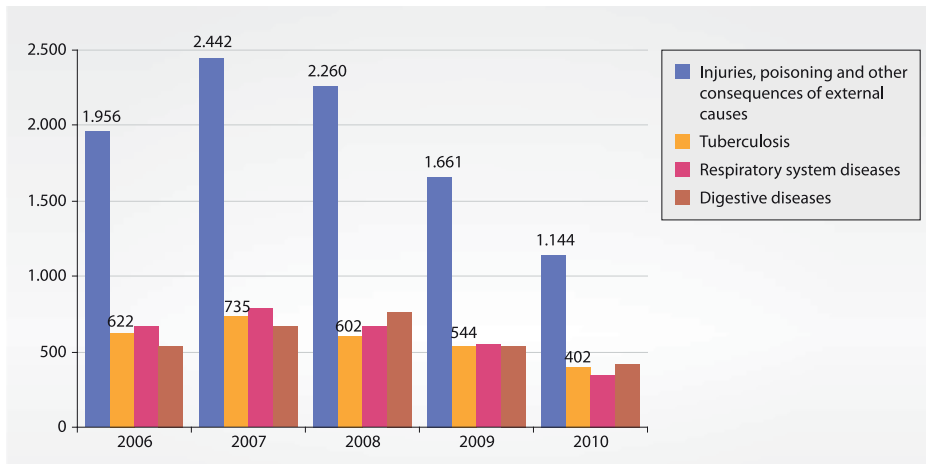


## New disability cases by disease category, 2010

Source: Statistics Lithuania



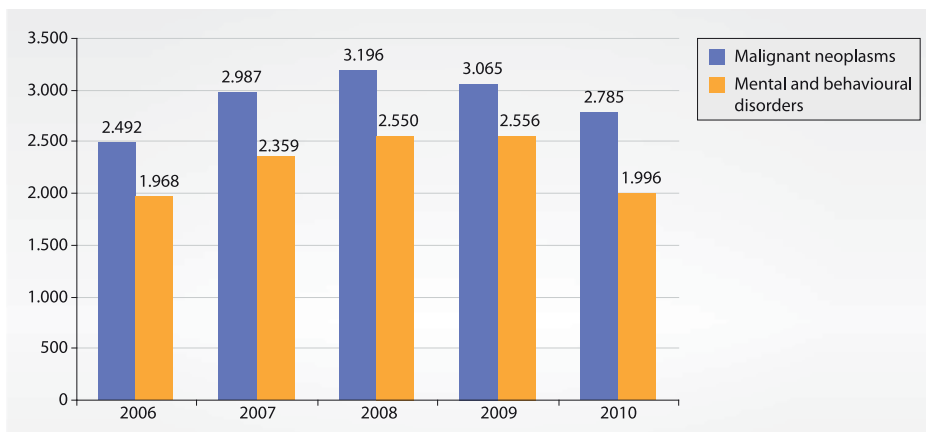
Causes of health problems for which invalidity has been declining in recent years.



### New disability cases by disease category

Source: Statistics Lithuania

Causes of health problems for which invalidity has little changed in recent years.



### New disability cases by disease category

Source: Statistics Lithuania

## Failure formula

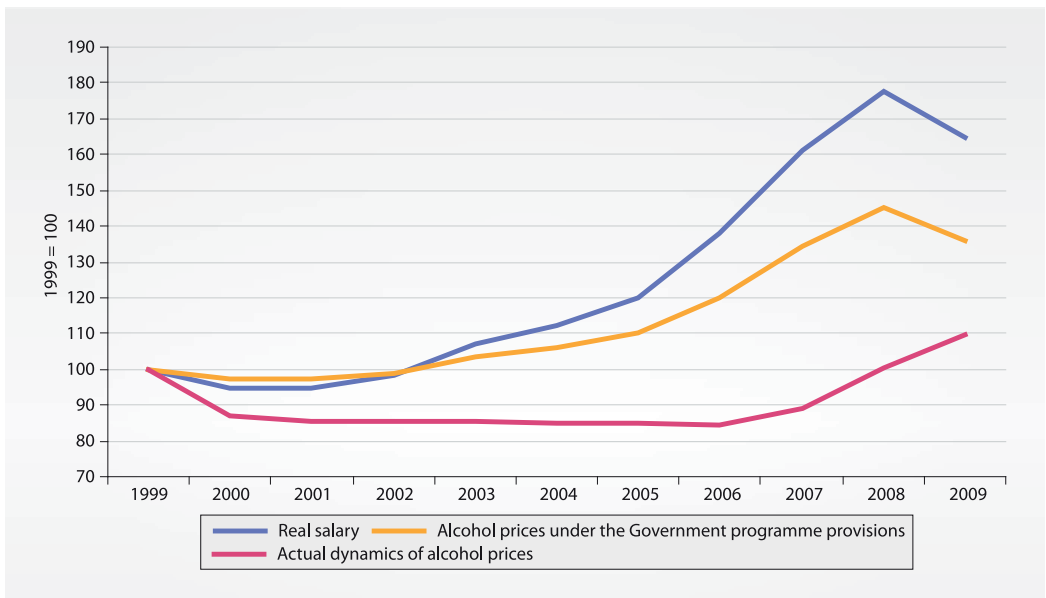
Controversial, and in some cases even detrimental to health, social policy

The Lithuanian Health Programme for 1998–2010 provided that the demand for alcohol would be reduced by increasing excise duties and by other methods, and consequently decreasing alcohol consumption would have a positive effect on human health.

Unfortunately, alcohol prices were reduced (one of the arguments for this was prevention of alcohol smuggling), alcohol consumption increased, and the number of alcohol-related deaths went up.

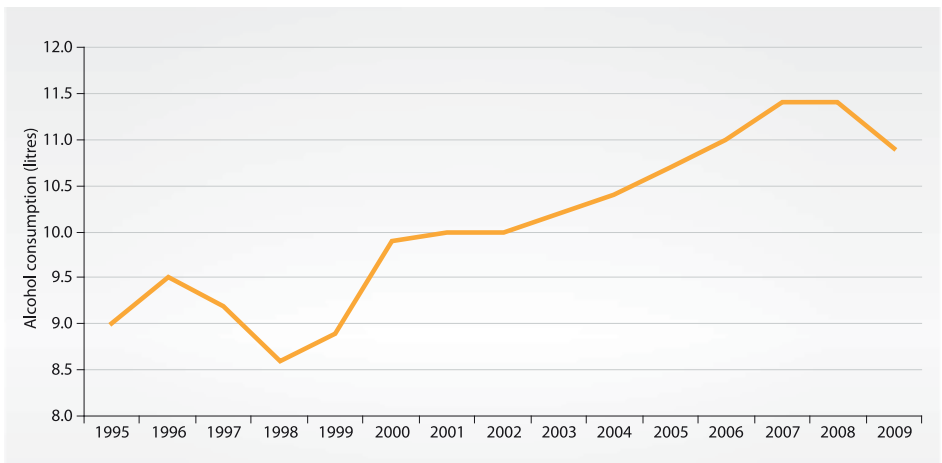
### Real salaries (wages) and alcohol prices (1999 = 100)

Source: Statistics Lithuania



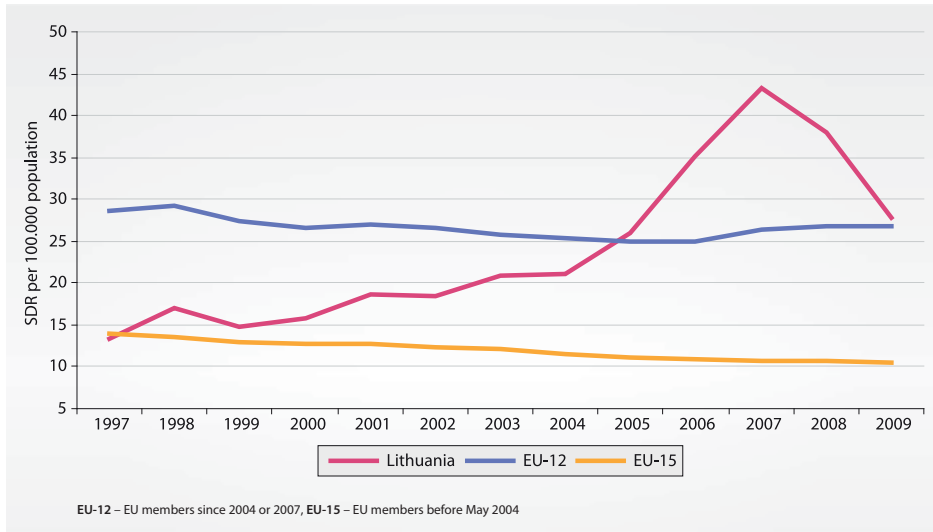
### Spirits and alcoholic cocktails (per capita consumption in litres of pure alcohol)

Source: Statistics Lithuania



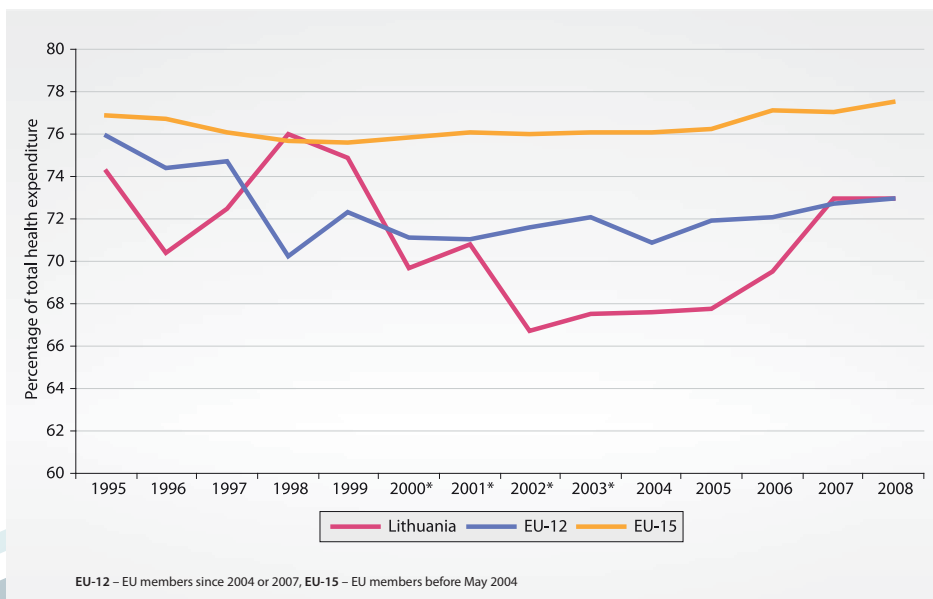
Since 2007, alcohol consumption control has improved (excise duties have been raised consistently and alcohol advertising has been strongly limited), but the achievements so far are not very significant. Strengthened international cooperation in alcohol and tobacco control, orientating public health policies of not only the European Union but also all countries of the WHO European

region towards this issue, would save tens – and maybe even hundreds – of thousands of lives of Europeans. Lithuania, which is to take over the EU presidency in 2013, will present proposals on priority areas of work. One of the priorities could be the strengthening of international cooperation in the area of alcohol and tobacco control.



SDR per 100,000 population. Chronic liver disease and cirrhosis. Comparison with EU Member States  
Source: WHO

### Inadequate and unstable funding for the health sector



Public health expenditure as % of total health expenditure. Comparison with EU Member States

\* revised based on data provided by Statistics Lithuania

Source: WHO

# ACHIEVEMENTS

Recent decades have been a period of both losses and breakthroughs in the Lithuanian health sector:

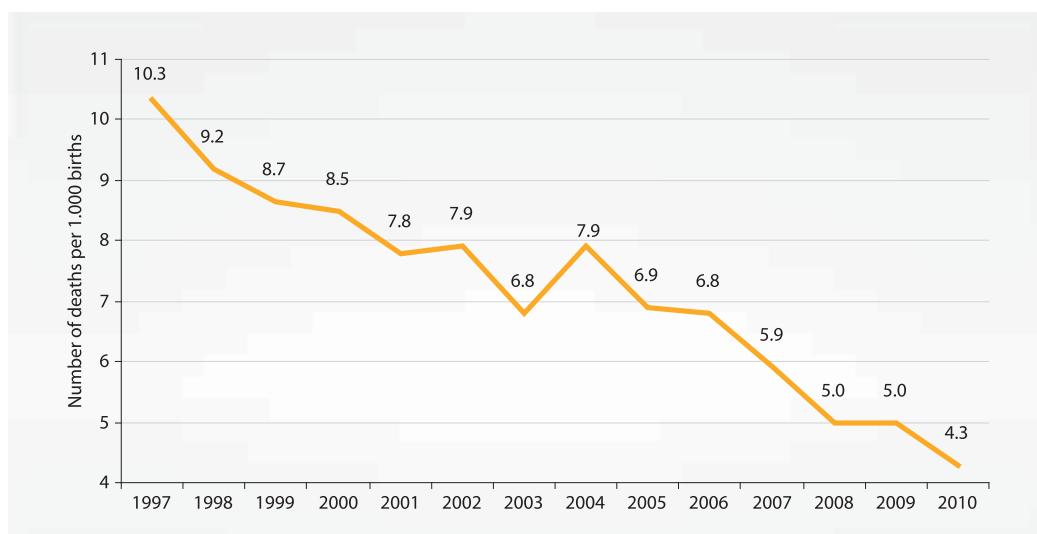
- infant mortality has decreased;
- “the war on the roads” has been prevented;
- the incidence of asthma got under control;
- The funding of prosthetic services from the CHIF has improved.

## Infant mortality

Since 1992, infant mortality has been reduced significantly in Lithuania.

### Infant deaths per 1.000 live births

Source: Health Statistics Lithuania, WHO

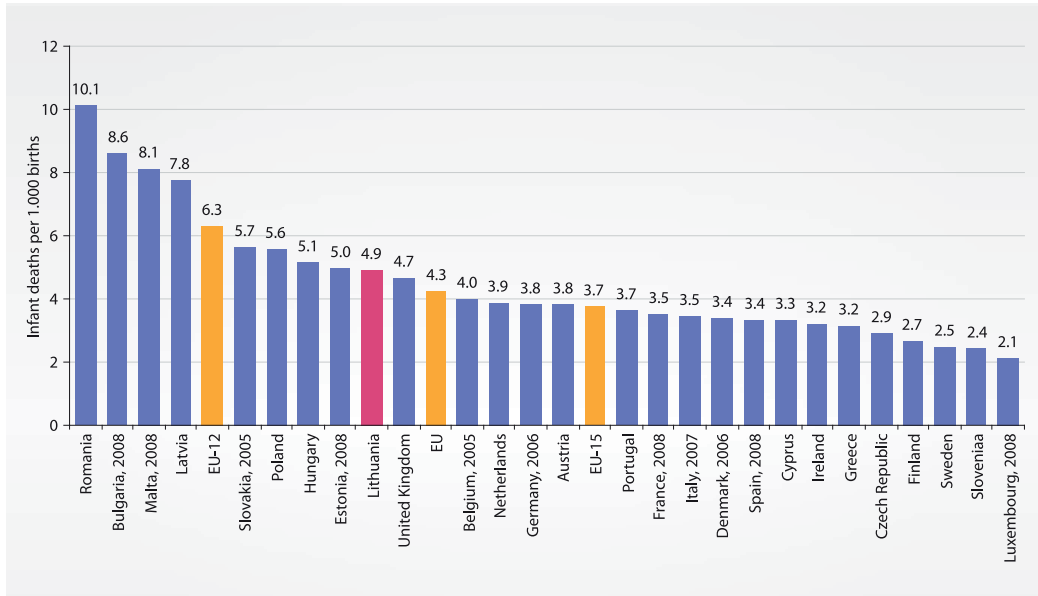


Although in 2009 this rate (4.93 per 1.000 live births) was lower than the average of the new EU Member States (6.32 per 1.000 live births), it exceeded the respective rate of Western European countries (EU-15) (3.73 per 1.000 live births in 2009).

According to the 2009 data, compared with other EU Member States, the infant mortality rate in Lithuania was lower than in Romania, Bulgaria, Malta, Latvia, Slovakia, Poland, Hungary and Estonia.

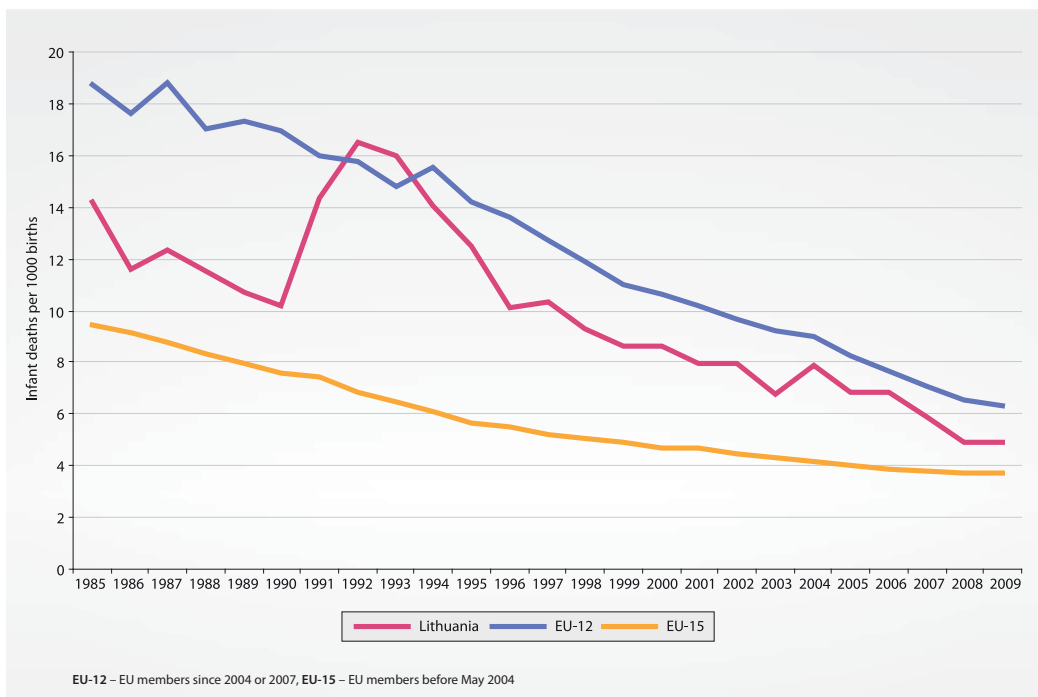
## Infant deaths per 1.000 live births. Comparison with EU Member States, 2009

Source: WHO



## Infant deaths per 1.000 live births. Comparison with EU Member States

Source: WHO



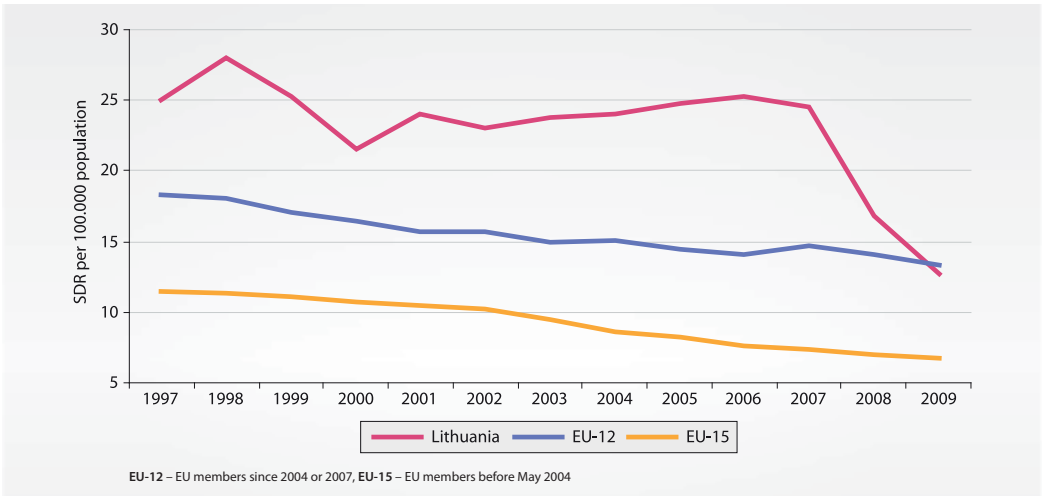
## Persons killed in transport accidents

From 2006 to 2010, the number of people killed in road traffic accidents decreased 2.5 times. The latter achievement has clearly demonstrated the effectiveness of cross-

sectoral cooperation (transport services, police, education, public health sectors) for the benefit of public health.

### SDR per 100.000 population. Persons killed in traffic accidents. Comparison with EU Member States

Source: WHO

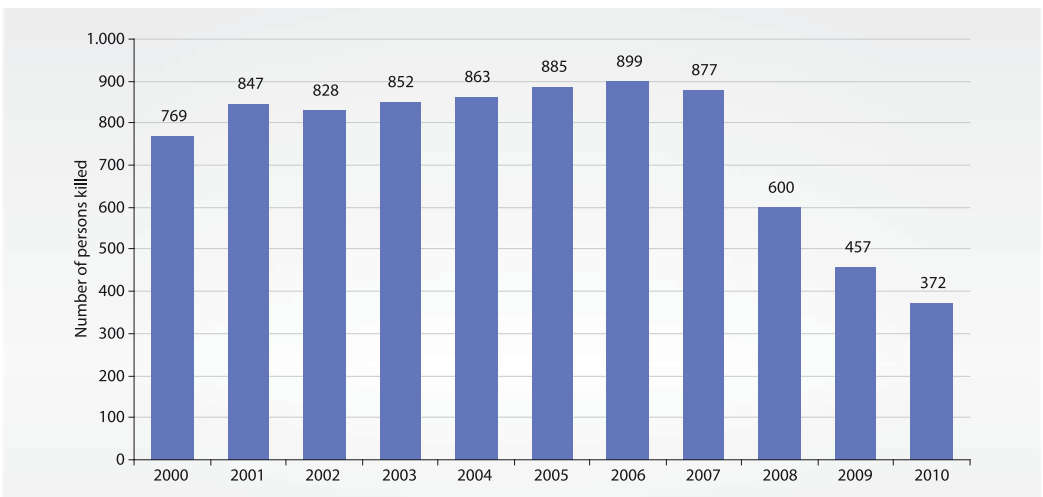


The results of health promotion activities in recent years should be measured not

only in relative but also in absolute – more understandable to ordinary citizens – terms.

### Number of persons killed in traffic accidents

Source: Statistics Lithuania





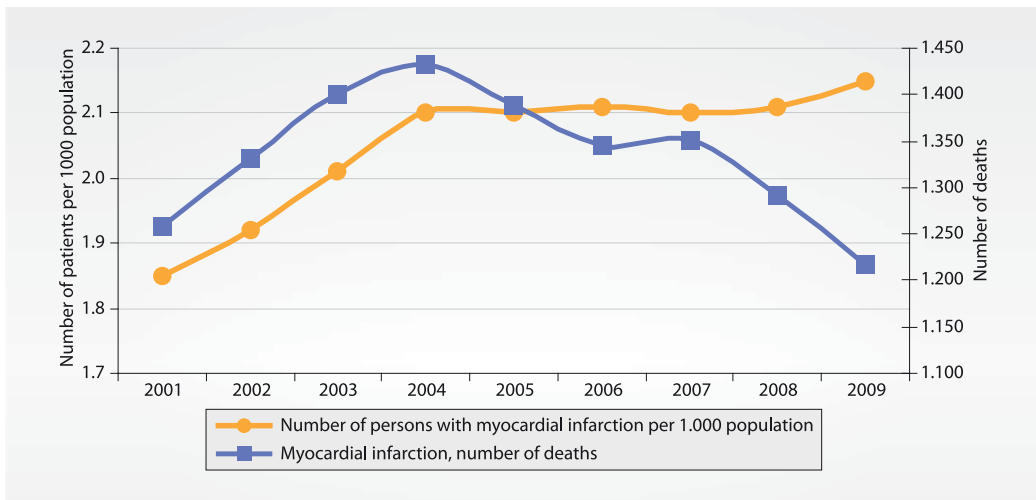
## Myocardial infarction

According to data available to Statistics Lithuania, 1216 people died from myocardial infarction in Lithuania in 2009. Over 76% of those who died from myocardial infarction were older than 74 years. Based on the health statistics data available, in 2001–2004, the number of patients with myocardial infarction started to rise but stabilised in 2004, while the

number of deaths, which had been growing at a dangerous pace until 2004 as well, began to go down and from 2004 to 2009 decreased by about 17%. Stabilisation of the incidence of myocardial infarction and the decrease in mortality could be attributed to more successful recent achievements in the health system.

### Number of persons with myocardial infarction per 1.000 population

Source: Health Statistics Lithuania, Statistics Lithuania



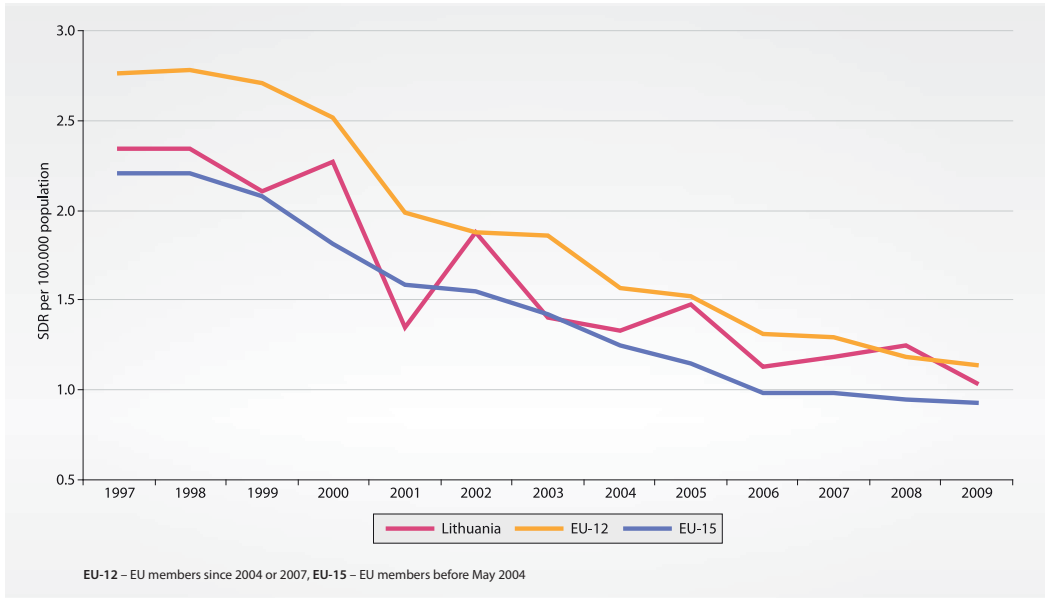
## Asthma

According to health statistics, in 2001–2009, the standardised mortality rate for asthma declined in Lithuania and was close to the EU average. Based on the data available to Statistics Lithuania and the WHO, in 2009, 803 people died from chronic bronchitis and bronchial asthma and 46 persons died from asthma. According to Health Statistics Lithuania statistics, in 2001–2009, the number of patients with asthma almost doubled in

Lithuania and the number of deaths, which rose to 77 in 2002, started to decline and by 2009 dropped by 67%. The majority of those who died from asthma were older than 74 years. It should be taken into account that with the incidence of this disease increasing, the decrease in mortality from it could be considered as one of the successes of the health system.

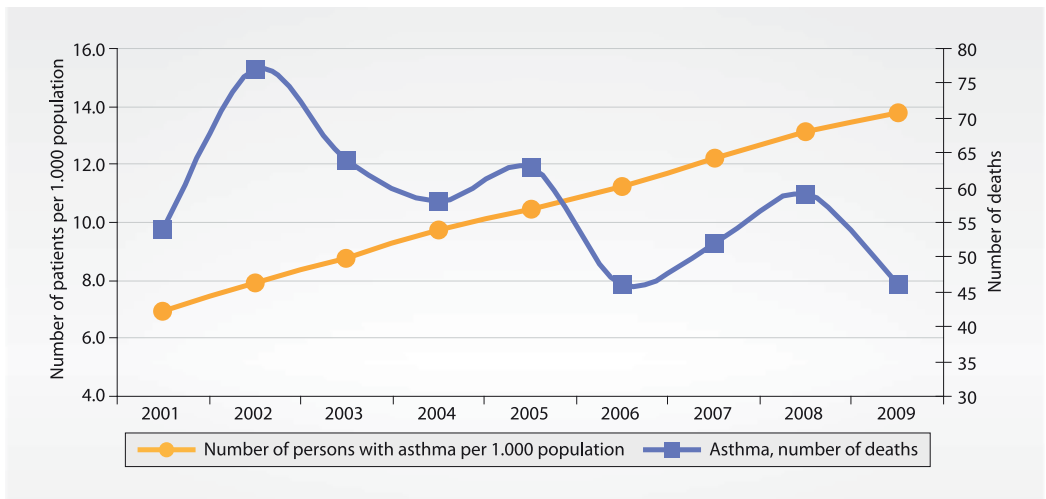
## SDR per 100.000 population. Asthma. Comparison with EU Member States

Source: WHO



## Number of asthma cases and deaths from asthma

Source: Health Statistics Lithuania, Statistics Lithuania



## Immunisation

The objective set in the Lithuanian Health Programme (LHP) to increase the extent of immunisation against infectious diseases according to the Lithuanian immunisation

schedule (to 97–98%) by 2010 was achieved. In 2009, the share of inoculated infants under 1 year of age exceeded 97%.

## Prosthetics

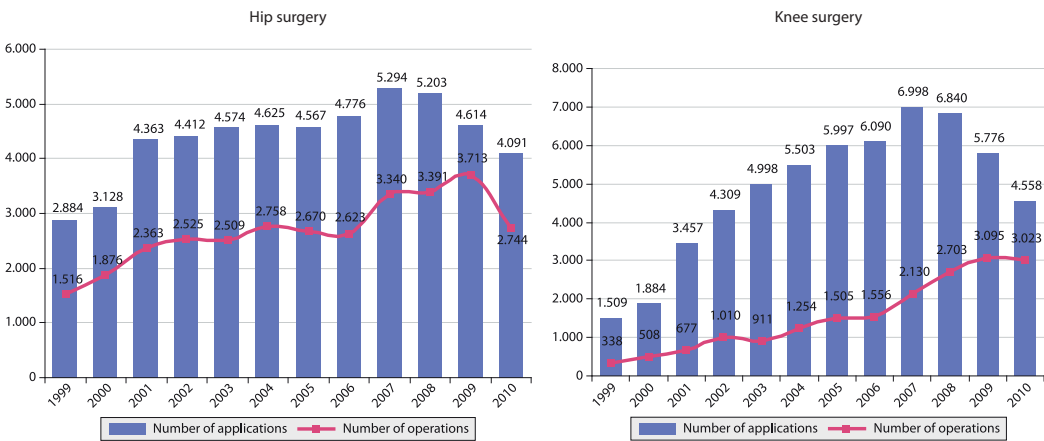
Modern medicine deals not only with life-saving but also with reduction of disability (better quality of life). Dental and joint prostheses for the country's residents are either fully or partly paid for from the Compulsory Health Insurance Fund (CHIF) budget. Since 2002, dental prosthetic services have been provided to more than 140.000 people or, assuming that the average dental prosthesis

warranty period is 7–8 years, it could be stated that over a million years of a better quality of life was provided to all residents of the country over this period.

In 1999–2010, the number of replacement surgery procedures increased as well. More than 50.000 hip and knee surgery procedures were carried out.

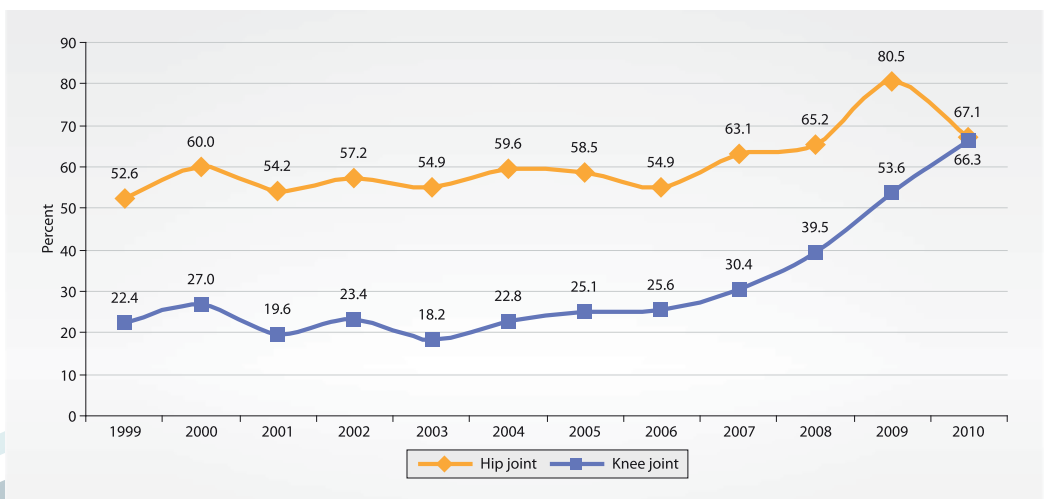
### Initial new applications and replacement surgery procedures

Source: CHIF



### Change in the ratio of operations to new applications for replacement surgery as %

Source: CHIF

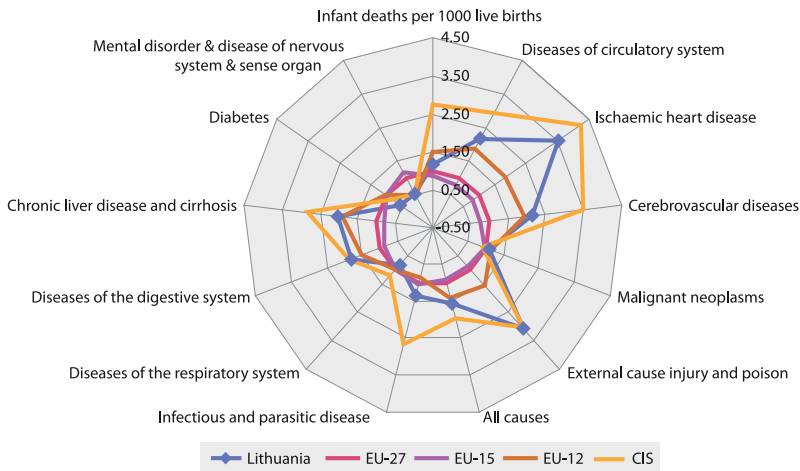


# LITHUANIA IN EUROPE

Lithuanians enjoy better health in comparison with the residents of CIS countries, but are lagging behind the citizens of most EU Member States

Mortality (SDR, all ages per 100.000) in 2009 by causes. EU-27 = 1

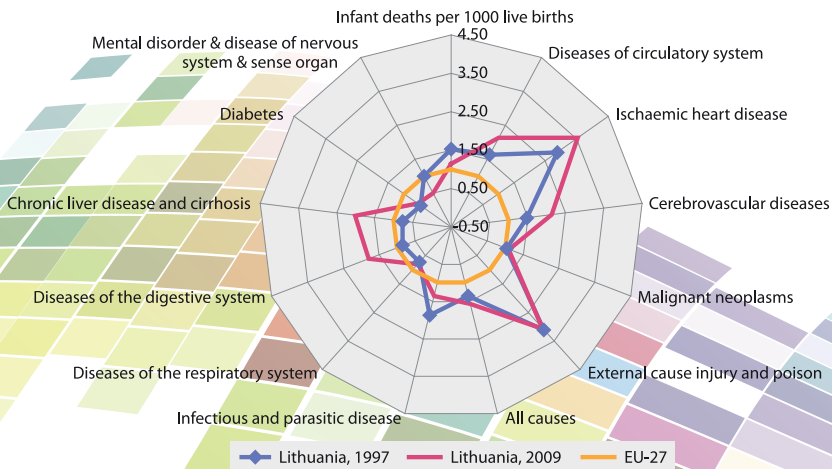
Source: WHO, authors' estimates



Since 1997, Lithuania has moved closer to the EU average in terms of infant mortality and infectious disease mortality rates. The figures for most of the other causes of death show a divergence from the EU average.

Mortality (SDR, all ages per 100.000) in 1997 and 2009 by causes. EU-27 = 1

Source: WHO, authors' estimates



# Health care system resources and functioning in Lithuania and EU Member States

Lithuania's demographic and morbidity problems are determined by social and physical conditions, lifestyles as well as the quality and

availability of health services related to health promotion, disease prevention, treatment and rehabilitation.

## Medical staff

Employees are the main health care system resources. According to health statistics data, in 2010 the number of health care staff in Lithuania (*active staff* including doctors, nursing specialists, physical medicine and rehabilitation, oral care, laboratory diagnostics specialists, dietitians and other specialists with higher medical education) stood at approximately 46.600. The number of practitioners (doctors, dentists and nurses engaged in clinical work with patients) in 2010 reached 38.400. Nurses accounted for over 61% and doctors for 31.8% of the practising medical staff.

The number of doctors rapidly increased in Lithuania until 1990. The rate of growth of the number of doctors in EU Member States was almost the same as in the CIS countries, while the respective rate of growth in Central and Eastern European countries was considerably lower. As a result of such dynamics, the number of doctors in Lithuania in 1990 was 55% higher than in Eastern European countries and 1.3 times higher than in EU Member States, calculating the number of doctors per capita. After 1990, the number of doctors stabilised in Lithuania and started to decline slowly, while the respective number in EU Member States was on the rise. Despite the narrowing gap between Lithuania and the expanding EU region, in the nearest future Lithuania will remain an EU Member State with one of the highest numbers of doctors. In 2009, the number of doctors per 10.000 population in Lithuania was one of the highest

in the European Union (a higher number of doctors was only in Greece, Austria, Portugal, Spain and Bulgaria).

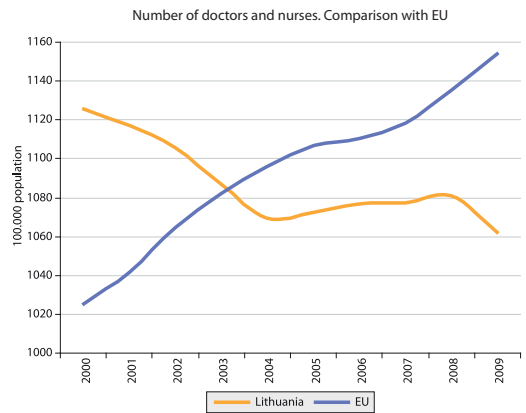
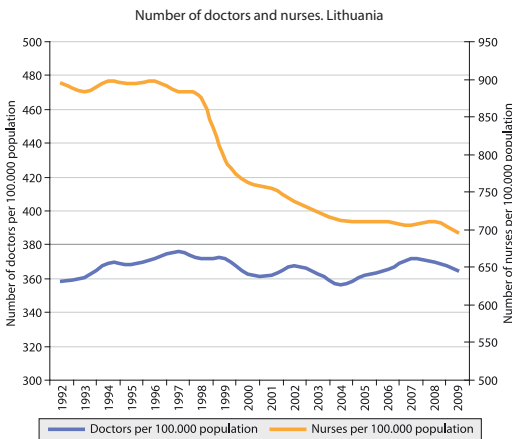
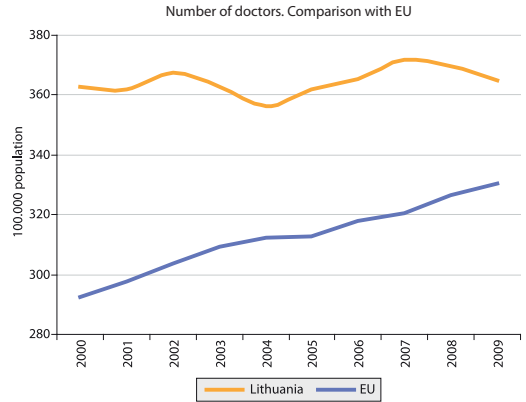
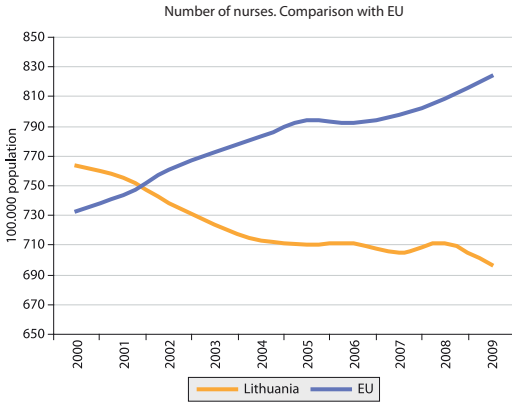
It is quite difficult to assess changes in the number of doctors by specialty *in the aspect of the need for services*. One of the possible criteria for the assessment of the need for doctors is the time patients have to wait for services. According to statistics available to health insurance funds (the study of the Ministry of Health), patients have to wait the longest for cardiologist (32 days in 2009), ophthalmologist (21 days in 2009) and neurologist (14 days in 2009) services. However, based on the previously described morbidity and mortality trends in Lithuania, the need for doctors in these specialties and other treatment resources is likely to increase for the treatment of circulatory system diseases, oncological diseases, gastrointestinal diseases, tuberculosis, mental and behavioural disorders, diabetes, pneumonia and asthma.

The number of nurses began to decline in Lithuania in 1990. In the period from 1992 to 2010, the number of nurses employed in the Lithuanian health care system per 100.000 population shrank by approximately 23% and was about 15% lower than the respective average in EU Member States.

In 2000–2009, there was an average of 2.5 nurses per doctor in EU countries, while the ratio of nurses to doctors in Lithuania in the same period made up 2.1–1.9. Judging by the EU rates, there is a lack of nurses and too many doctors in Lithuania.

## Number of medical staff

Sources: Health Statistics Lithuania, WHO



Although the majority of doctors work in urban areas (approximately 70% of all doctors working in the system of the Ministry of Health and the private sector (excluding health resorts)), keeping in mind that the majority of specialised treatment establishments are located in cities and only 33% of the country's population live in districts, such distribution of doctors between cities and districts is largely in line with the demographic structure. Nevertheless, the regional distribution (by

county) of the number of medical staff is very uneven. In 1997–2010, it remained almost unchanged. For example, the number of doctors per 10.000 population in Kaunas and Vilnius counties is about three times higher than the respective rate in the Tauragė county. Regional disparity in the number of nurses is much smaller: the number of nurses per 10.000 population in Kaunas and Vilnius counties is only about 1.4 times higher than the respective rate in the Tauragė county.

## Health care facilities and services

The Lithuanian health care system is characterised by a large hospital infrastructure, inadequate primary health care level (out-

patient health care services, family doctor's services) and uneven regional distribution of health care facilities and specialists.

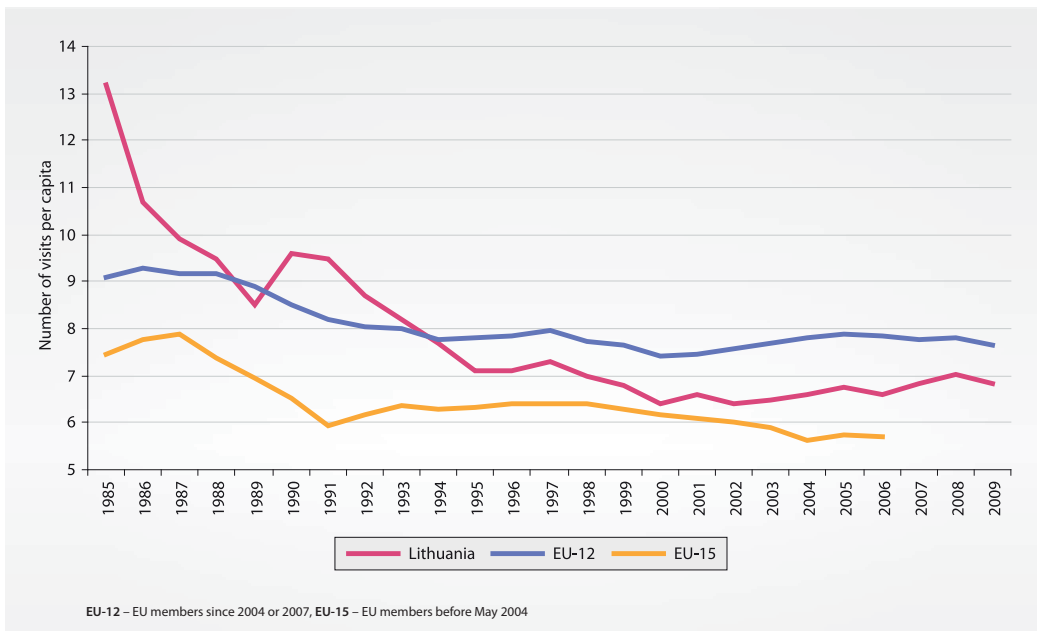
## Outpatient treatment facilities and services

According to health statistics data, at the end of 2010, outpatient and polyclinic institutions (185 institutions (legal entities) or 434 institutions including their organisational units) accounted for the majority of health facilities. The number of outpatient institutions began to grow in 1995 following the start of decentralisation of the health sector and separation of outpatient institutions (polyclinics and dispensaries) from hospitals.

From 1990, the number of outpatient visits to doctors per capita per year started to decline considerably, but in around 2000 this rate stabilised and has little changed ever since. In 2009, this rate in Lithuania became similar to the EU average (6.85 visits to doctors per year), but was lower than the EU-12 average (7.65 visits to doctors per year).

### Number of visits to doctors. Comparison with EU Member States

Source: WHO

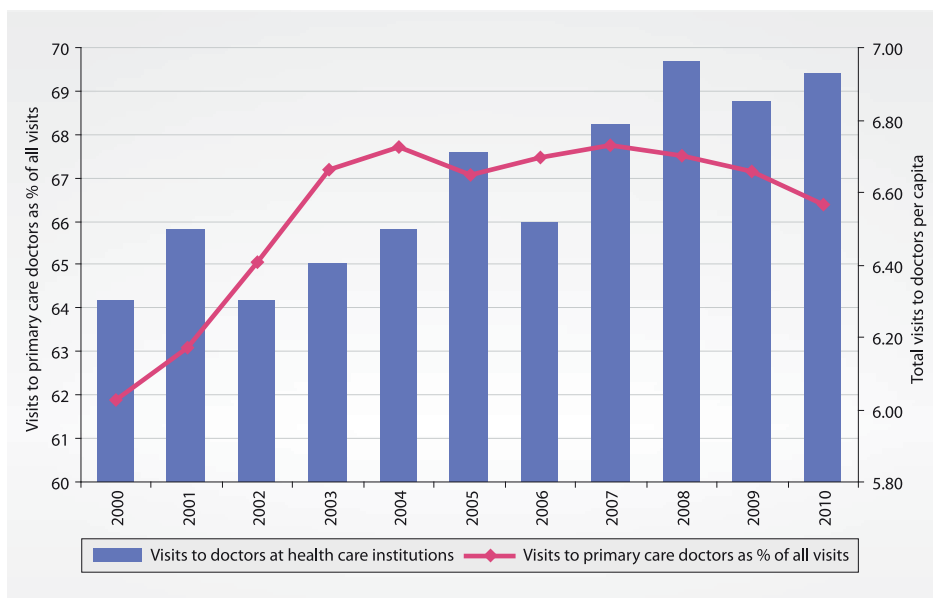


The share of visits to family doctors as a percentage of all outpatient visits, which had risen in the period 2000–2003 (from 62% to 67%), has currently stabilised. It is likely that this reflects an increase in population confidence in family doctors and maybe the influence of restrictions placed on the payment for specialised outpatient services.

Private medical facilities, the majority of which are small, are dominated by establishments providing dental services. According to health statistics data, there were 1.046 such facilities and 184 private primary health care (PHC) facilities in 2010.

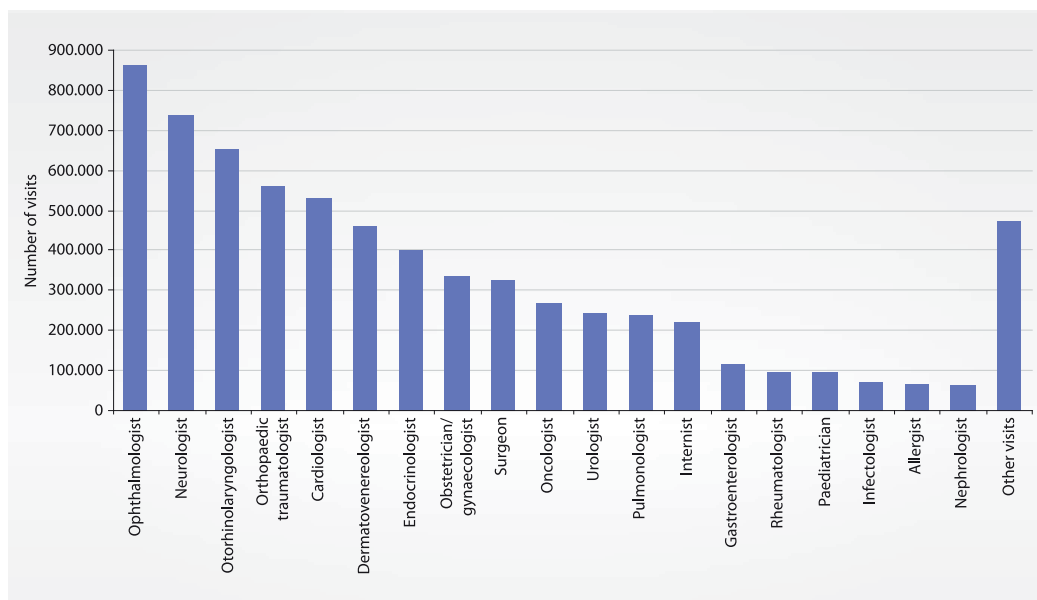
## Visits to medical specialists, 2010

Source: Health Statistics Lithuania



## Visits to medical specialists in 2010

Source: CHIF



In 2010, the highest numbers of patients visited ophthalmologists, neurologists, otorhinolaryngologists, orthopaedic trauma surgeons and cardiologists. In 2006–2010, the most marked increase was recorded in the number of visits to cardiologists,

rheumatologists, gastroenterologists, nephrologists, endocrinologists, allergists and pulmonologists. The biggest increase was recorded in the number of visits to specialists treating diseases with the highest (and increasing) morbidity and mortality rates.



## Emergency medical care

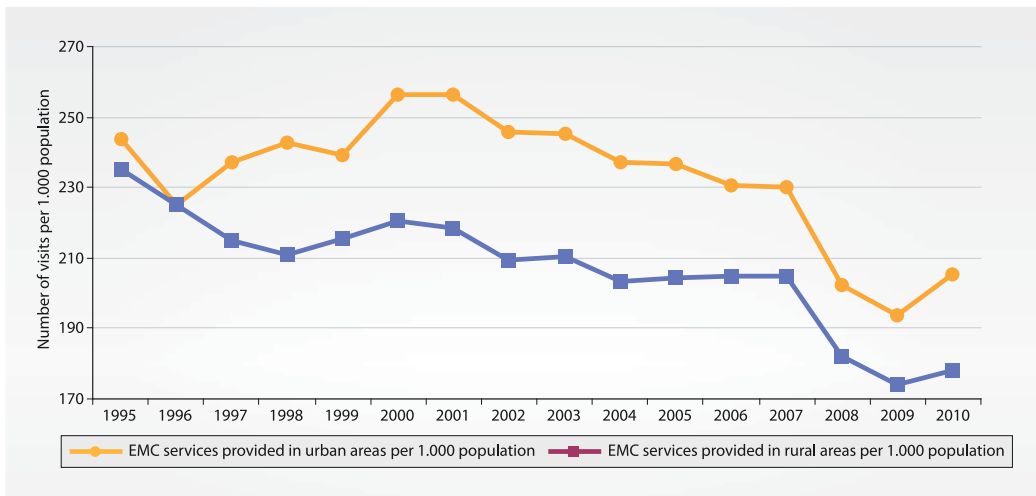
A decrease in the scope of emergency medical services from 2000 and a sudden drop in the scope of these services in 2008–2009 might have been determined by a changed procedure for paying for emergency medical services and a relative reduction in the funding of emergency medical services (as a percentage of health expenditure) rather than lower demand for the services. The period 2000–2008 saw not only a considerable drop in the scope of the services provided but also a rise in the number of patients who were

refused the services or refused emergency medical services themselves. It is likely that in the wake of an increase in the standard number of residents serviced by one crew, the EMS dispatcher office started limiting the number of EMS crew departures to patients with non-acute health disorders (i.e. to those who, in their opinion, could be efficiently served by primary health care services).<sup>4</sup>

<sup>4</sup> See Figure "Lithuanian health sector at the turn of the century", 2010

### Emergency medical care (EMC) services for residents

Source: Health Statistics Lithuania



## Hospitals and inpatient care

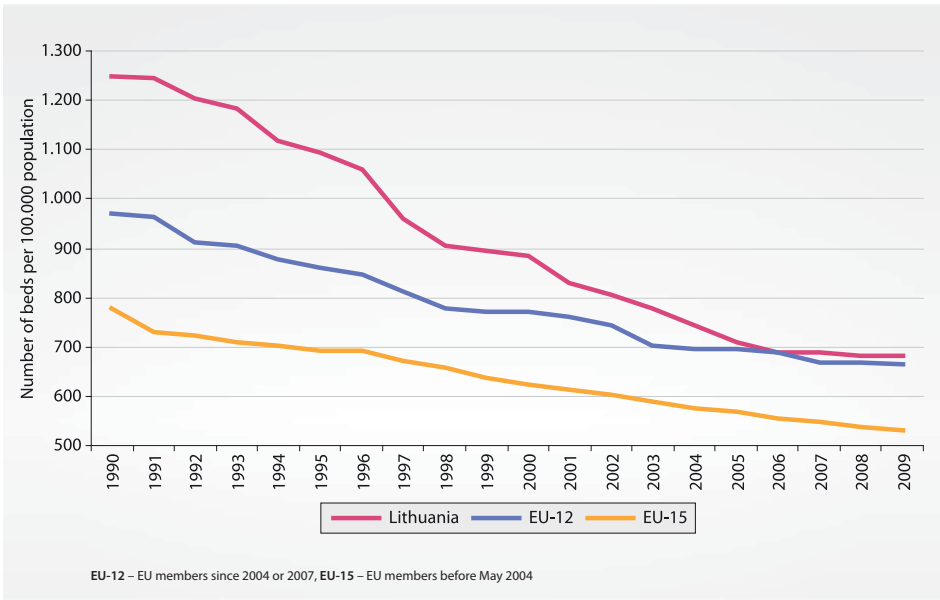
Although from 1995 to 2010 the number of hospitals (including organisational units) went down from 195 to 147 and the number of hospital beds per 10,000 population decreased more than 1.8 times since 1990, inpatient services still accounted for a significant part of overall health care services. In 2009, the number of hospital beds in Lithuania (680.32 per 100,000 population) still considerably exceeded the respective EU-15 average (531.89 per 100,000 population) and was almost equal

to the respective EU-12 average (664.83 per 100,000 population).

In 1995–2010, the number of hospital beds was on the decline, but the bed occupancy rate fluctuated from 280 days per year in 1995 to 295 in 2005 and then returned to 280 days per year in 2010. It is likely that the bed occupancy rates are more related to hospital admissions and changes in the procedure for paying for inpatient services rather than the number of beds.

Number of hospital beds (excluding nursing beds). Comparison with EU Member States

Source: WHO

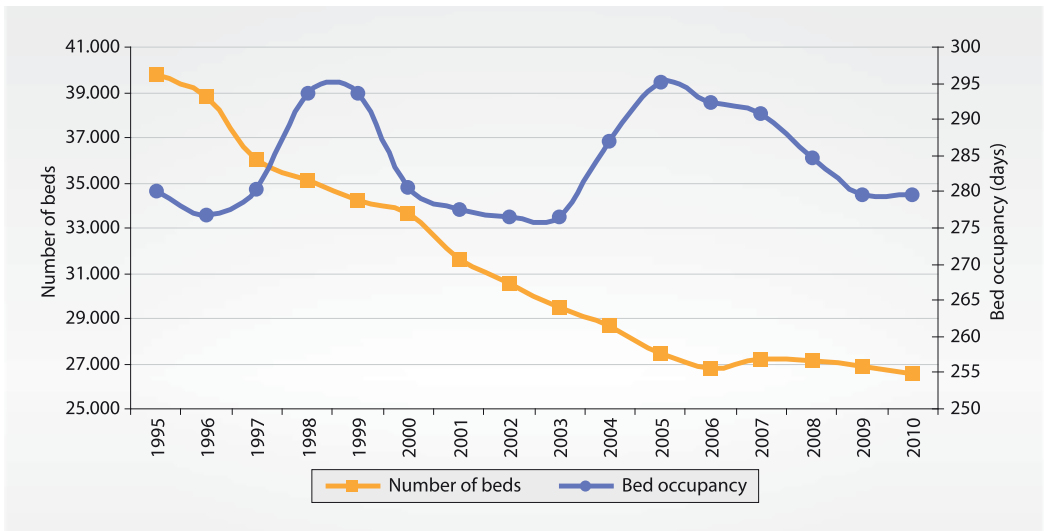


Although the average length of stay shrank 1.6 times from 1995 to 2010 and reached 9.07 days (6.93 days in general hospitals) in 2010, the number of hospitalised patients, compared with the 1995 figure, increased by

almost 7% and was (in terms of the annual number of admissions per 100 population) one of the highest in the European Union (above the EU-12 and EU-15 average).

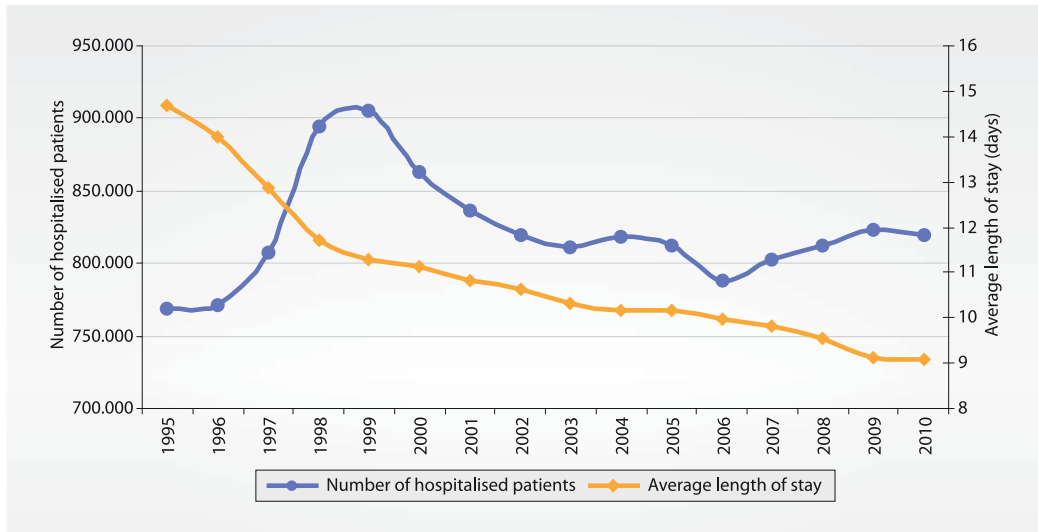
Number and occupancy of hospital beds in Lithuania

Source: Health Statistics Lithuania



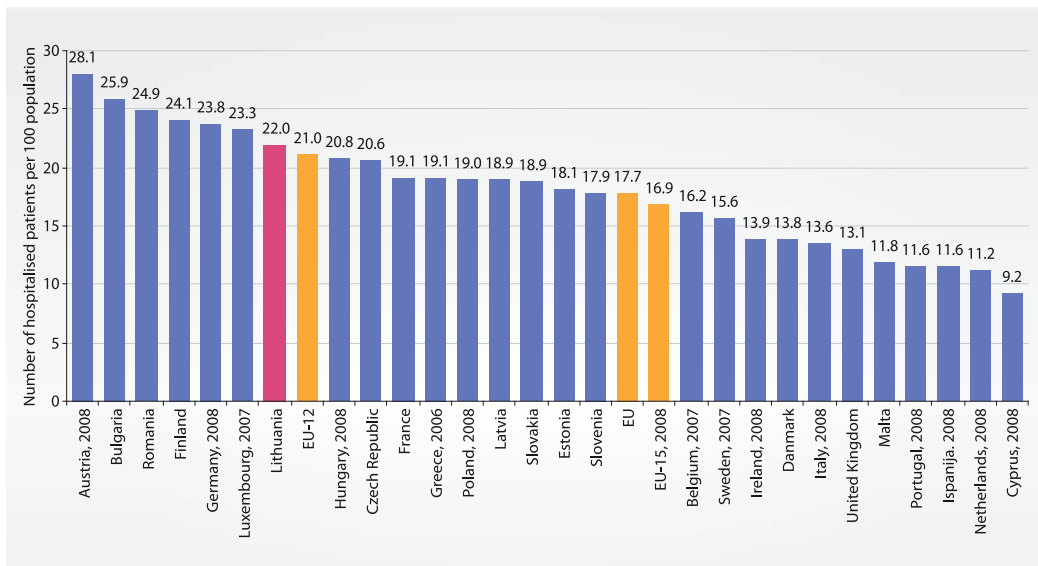
## Hospital performance in Lithuania

Source: Health Statistics Lithuania



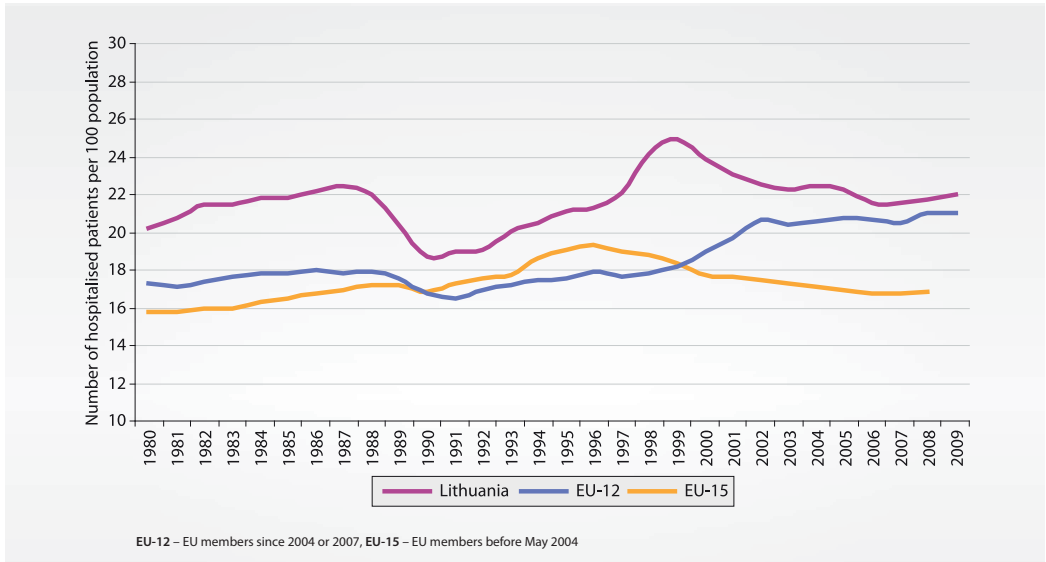
## Number of hospitalised patients. Comparison with EU Member States, 2009

Source: WHO



## Number of hospitalised patients. Comparison with EU Member States

Source: WHO

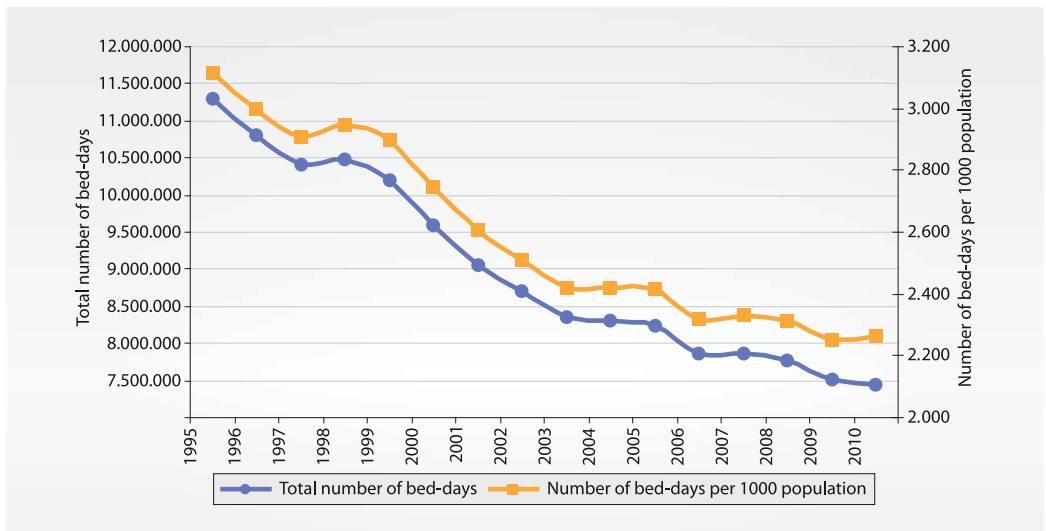


In order to assess the changes in the performance indicators of inpatient treatment facilities in 1995–2010 more clearly, it has been estimated how the number of bed-days changed over this period. As shown in the figure below, a major decrease in the number of bed-days (as well as hospital costs related to

the provision of services) had been recorded until 2003, and since 2004 changes in this indicator have been relatively small. It can be assumed that since 2004 the main hospital cost increases have been related with the growth of the cost of resources used and salaries rather than changes in the scope of services.

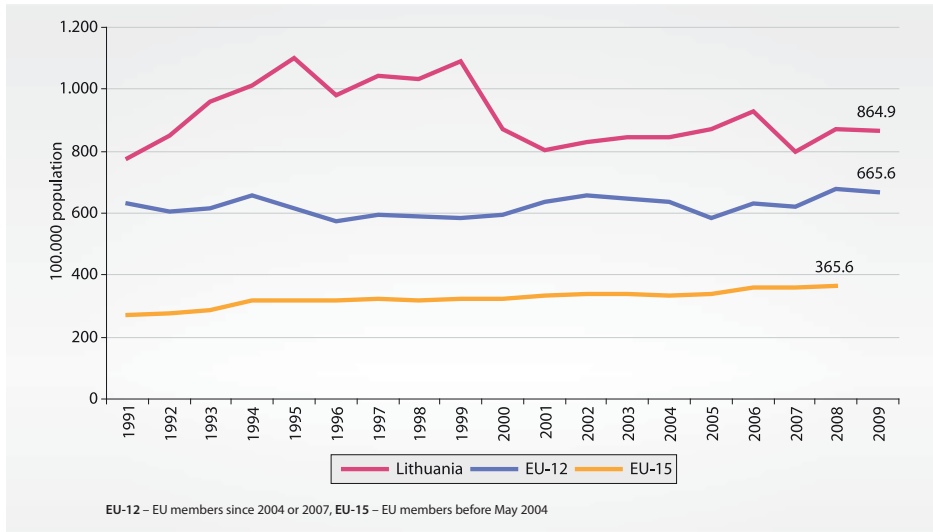
## Number of bed-days

Source: Health Statistics Lithuania



A comparison of the numbers of patients treated in hospitals and discharged in Lithuania and EU-15 in 2008 by disease category has shown a considerable difference between them. For example, the number of hospitalised patients with cerebrovascular diseases in Lithuania was almost 2.5 times higher, the number of patients with infectious diseases about 2.4 times higher, the number of patients with circulatory diseases

1.9 times higher, the number of respiratory diseases 1.7 times higher than in EU-15 and the number of patients hospitalised due to injuries, digestive and oncological diseases was similar to the EU-15 average. It should be noted that the number of patients hospitalised due to connective tissue and musculoskeletal system diseases in Lithuania was 20% lower than the respective EU-15 average.

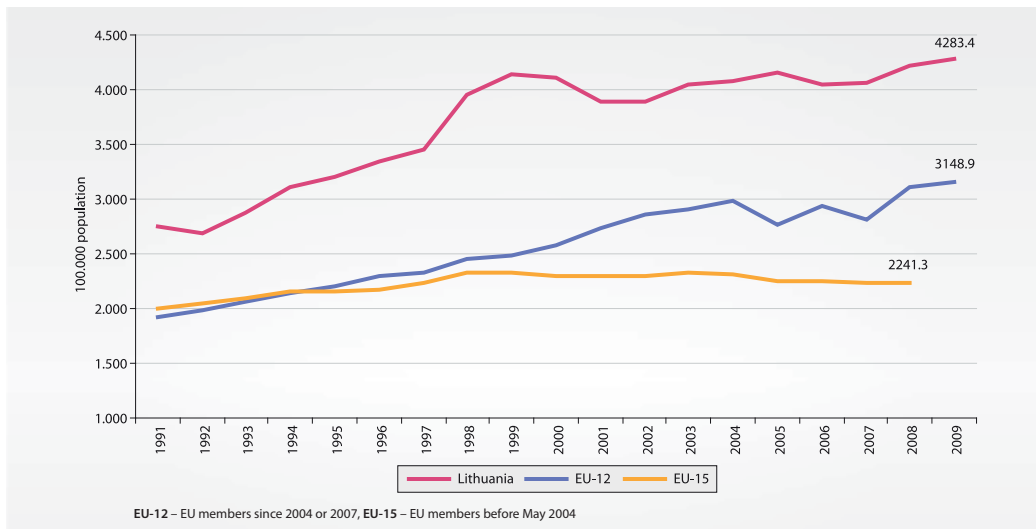


Number of hospitalised patients per 100.000 population. Infectious diseases. Comparison with EU Member States

Source: WHO

### Number of hospitalised patients per 100.000 population. Circulatory system diseases. Comparison with EU Member States

Source: WHO



It is likely that a large number of hospitalisation cases in Lithuania are related with not only high morbidity but also with an insufficiently effective outpatient service system (including pharmaceutical treatment). However, different numbers of hospitalised patients compared with the EU-15 average

show that the goal of reducing the number of hospitalised patients in Lithuania is applicable to only certain rather than all institutions providing inpatient services. The planning of hospital services could be improved in view of the morbidity structure.

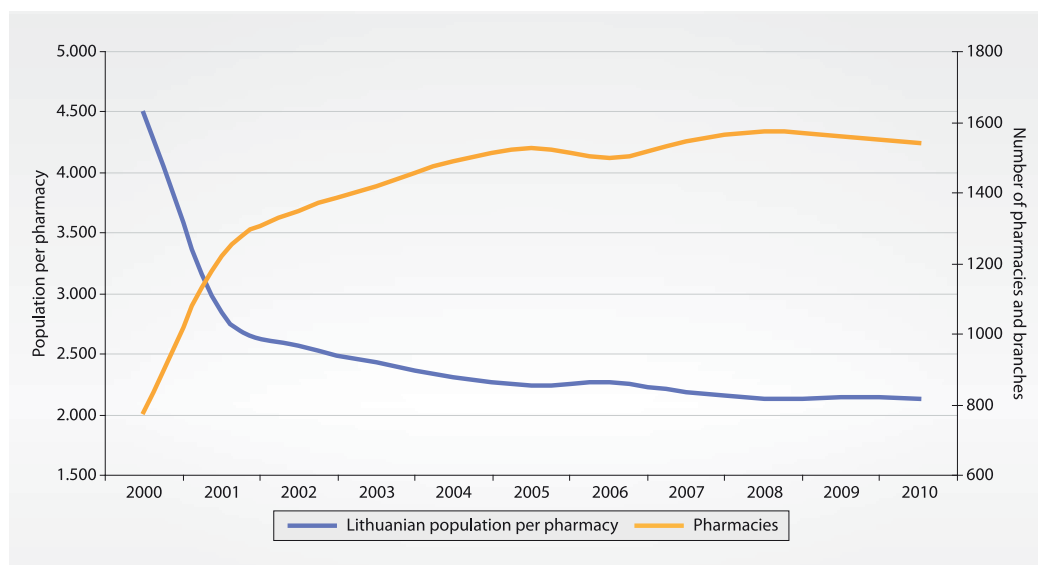
## Pharmaceuticals and medical aids

The number of pharmacies and their branches increased in 2000–2008. The biggest increase in the number of pharmacies was

recorded in 2000–2001. In 2005, it stabilised and has remained virtually unchanged.

### Number of pharmacies in Lithuania

Source: Health Statistics Lithuania

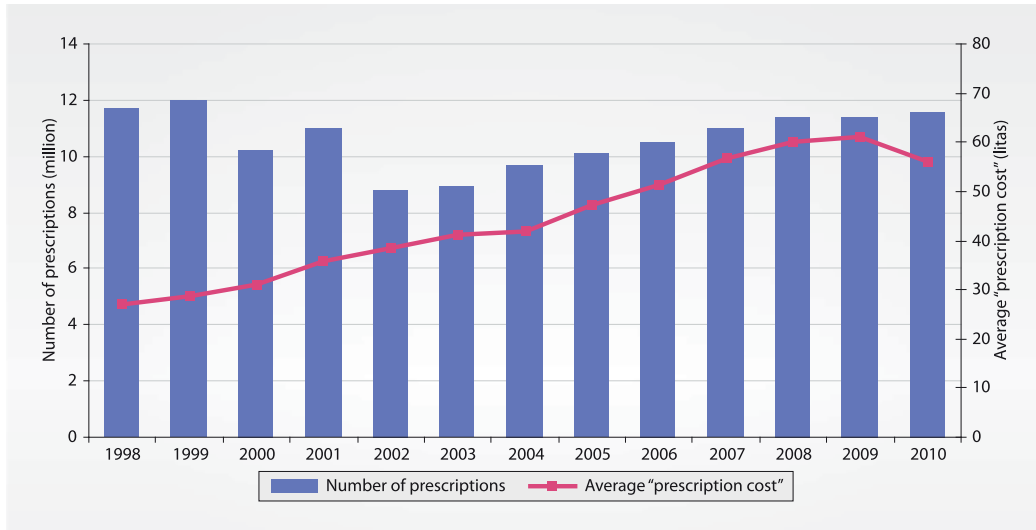


Although public expenditure on pharmaceuticals more than doubled in 2000–2010, the number prescriptions issued for reimbursed medicines has little changed since 1998, with a decrease in the number of issued prescriptions observed in 2000–2003. The main reason for the increase in

the expenditure on reimbursed medicines in the period discussed was a rise in the so-called “prescription price”. In 2000–2010, Lithuania introduced good manufacturing and distribution practice requirements for pharmaceuticals.

## Number of prescriptions for reimbursed pharmaceuticals and the average amount of CHIF budget expenditure per prescription in 1998–2010

Source: CHIF



## Funding of health promotion activities in Lithuania

According to the OECD Health Accounts 2000 methodology, the following expenditure is recorded under health expenditure:

- expenditure on health care services and products (therapeutic, rehabilitation, nursing and ancillary services as well as medical goods);
- expenditure on collective health care services (prevention and public health, health system administration and insurance);
- expenditure on health care-related functions (health care business capital formation, staff education and training, scientific research, food, hygiene and water control, environmental health, administration of cash benefits and benefits in kind).

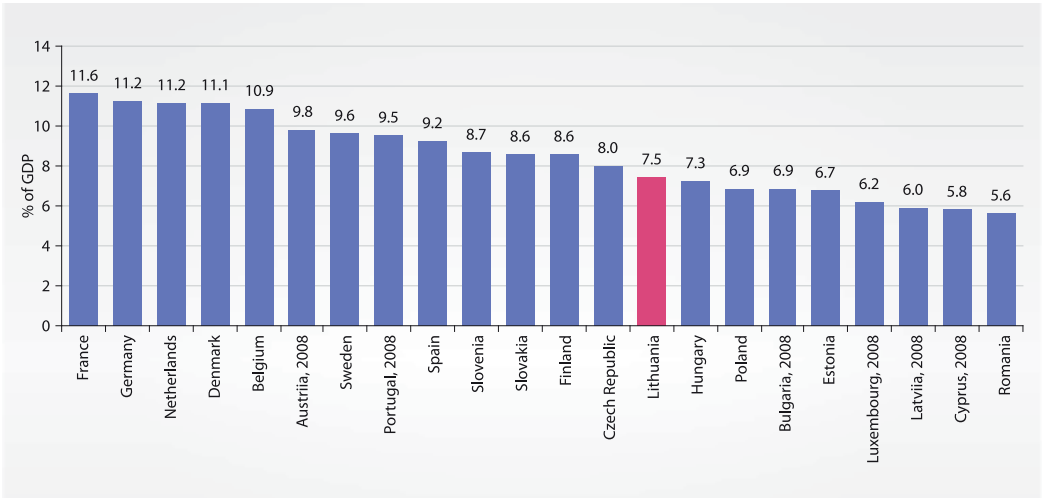
Health promotion activities in Lithuania are funded by the following key sources:

- the state budget;
- municipal budgets;
- the Compulsory Health Insurance Fund (CHIF);
- other public sources of funding (EU structural funds, tax subsidies, etc.);
- households (direct and informal payments);
- additional health insurance;
- other sources of funding (employers' expenses, charity, foreign aid, etc.).

According to Eurostat data, in 2008, total (public and private) health expenditure in Lithuania accounted for 6.4% of GDP. In 2009, it grew to 7.5% of GDP. Health expenditure as a percentage of GDP increased over this period (like in most EU Member States) mainly because the reduction of public health system funding as a result of the crisis was not as marked as the economic downturn.

## Total health expenditure as % of GDP. Comparison with EU Member States, 2009

Source: Eurostat

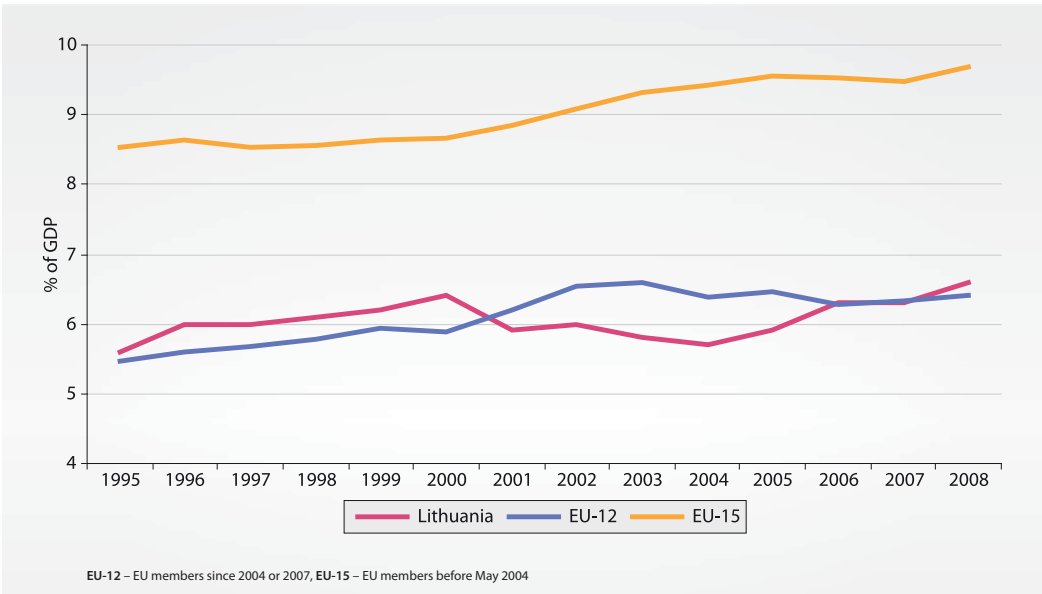


According to Eurostat data, in 2009, total health expenditure per capita in Lithuania made up EUR 593 and was one of the lowest in the European Union. The health expenditure

of Slovenia (EUR 1.506), the Czech Republic (EUR 1.044) and Slovakia (EUR 998) in 2009 exceeded that of Lithuania more than 1.6 times.

## Total health expenditure as % of GDP. Comparison with EU Member States

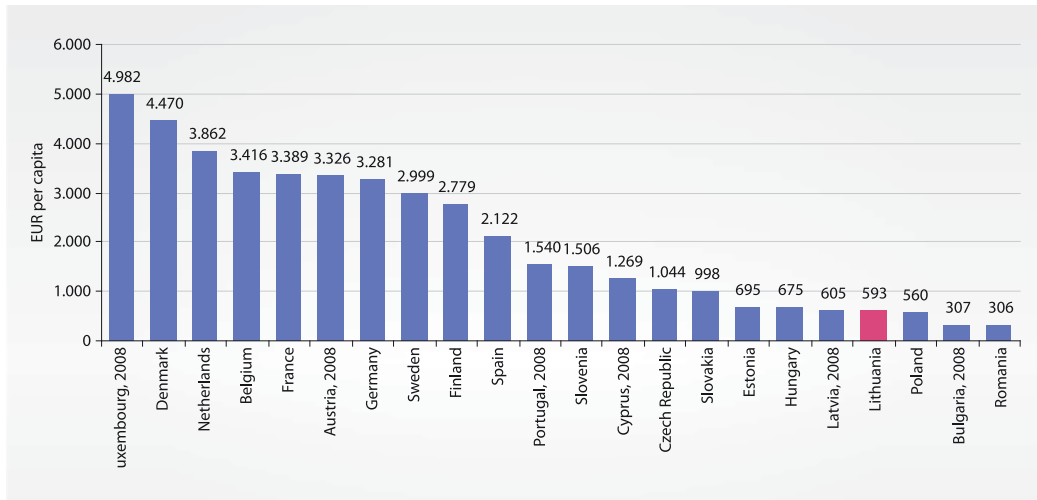
Source: WHO





## Total health expenditure, EUR per capita Comparison with EU Member States, 2009

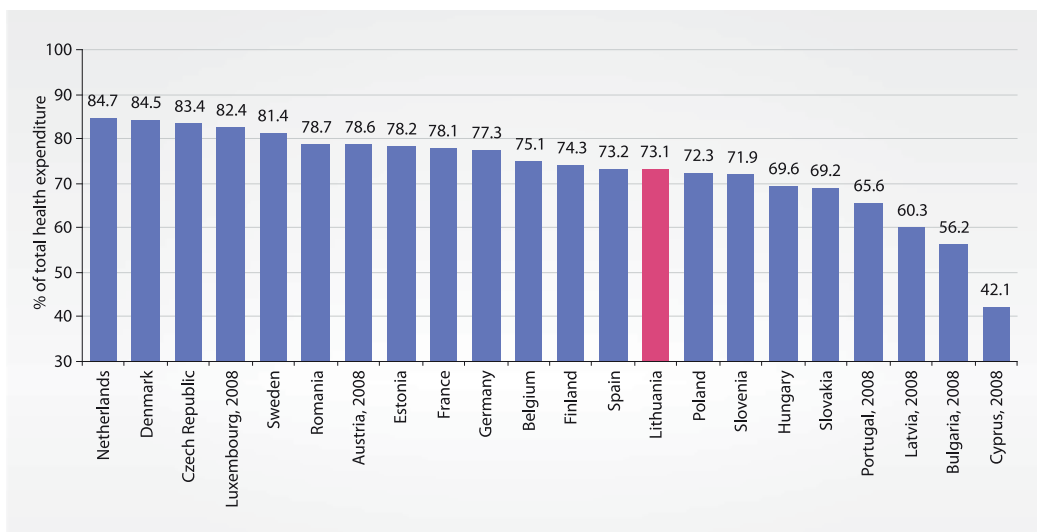
Source: Eurostat



According to Eurostat data, the share of public expenditure on health care increased in Lithuania in 2009 as well: in 2008, it made up 71.2% of total health expenditure and rose to 73% in 2009. The public (or government) funding of health activities as a percentage of GDP in Lithuania in 2009 was similar to that in Poland, Spain and Finland.

## Government health expenditure as % of total health expenditure. Comparison with EU Member States, 2009

Source: Eurostat



In 2000–2005, the increase in public health expenditure in Lithuania lagged behind GDP growth rates. Although it had started to go up in 2006 (during the implementation of the policy of raising health care workers' salaries in 2005–2007), in 2009 the share of public expenditure as a percentage of total health expenditure was still lower than the corresponding figure in 1998.

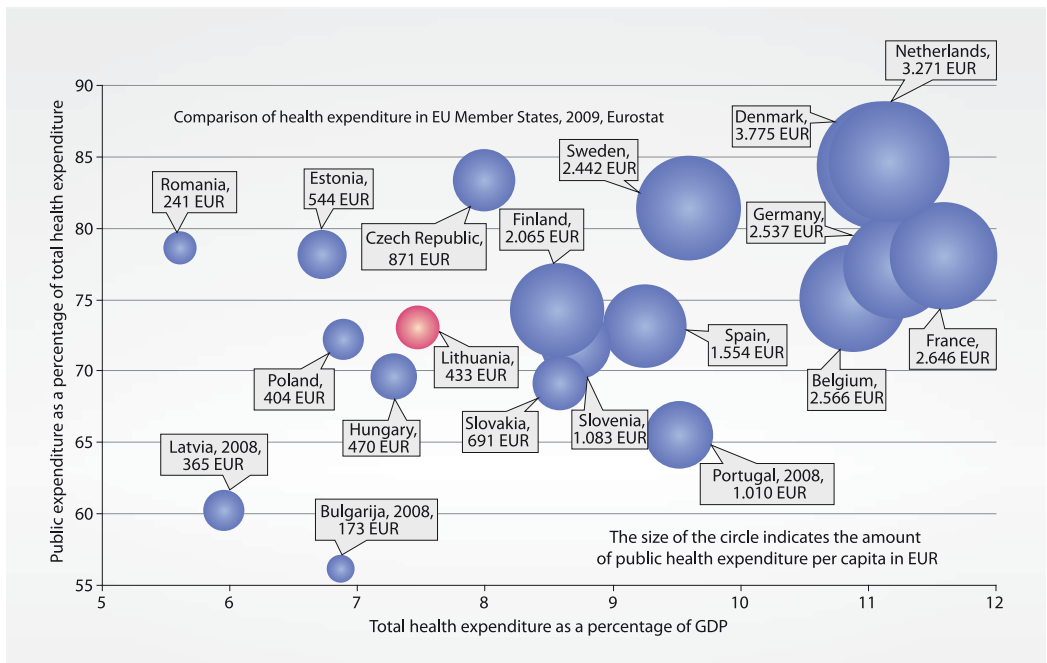
In 2000–2005, Lithuania retained relatively stable total (public and private) health expenditure as a percentage of GDP mainly

due to the growth of private expenditure. According to National Health Accounts data, private health expenditure continues to grow: from 2004 to 2009, direct household expenditure on health surged more than 57% to reach LTL 1.792 billion in 2009. The bulk of household health expenditure is allocated for pharmaceuticals.

Lithuanian health system finances in the context of EU Member States are illustrated in the figure on page 52.

### Comparison with EU Member States

Sources: Eurostat, Health Economics centre (SEC) estimates



## System of Health Accounts

Since 2004, Lithuanian statisticians have applied a National Health Accounts methodology meeting modern requirements in gathering and processing statistical data.

**Table 3.** Lithuanian System of Health Accounts. Health expenditure

	2004	2005	2006	2007	2008	2009
<b>Government sector</b>						
Total health expenditure, in LTL million	2414.3	2862.5	3584.4	4507.2	5354.2	5089.2
Structure of total health expenditure in %	67.6	67.8	69.5	73	72.4	73.4
<b>Government sector, excluding social insurance funds</b>						
Total health expenditure, in LTL million	308.3	396.3	563.1	887.3	1.000.7	854.4
<b>Social insurance funds</b>						
Total health expenditure, in LTL million	2106	2466.3	3021.3	3619.9	4353.5	4234.8
<b>Private sector</b>						
Total health expenditure, in LTL million	1159.5	1360.9	1571.8	1668.1	2041.3	1841.8
Structure of total health expenditure in %	32.4	32.2	30.5	27	27.6	26.6
<b>Private insurance</b>						
Total health expenditure, in LTL million	14.2	15.2	20.6	24.3	37.1	44.9
<b>Direct expenditure of private households</b>						
Total health expenditure, in LTL million	1141.4	1341.1	1546.1	1640.2	1999.8	1792.8
<b>Non-profit institutions providing services to households</b>						
Total health expenditure, in LTL million	0.4	0.7	1	1	1.3	0.8
<b>Companies</b>						
Total health expenditure, in LTL million	3.5	3.9	4	2.5	3.1	3.3
<b>Other countries</b>						
Total health expenditure, in LTL million	0.3	0.7	0.5	0.6	0.3	0.5
<b>Total</b>						
Total health expenditure, in LTL million	3574.1	4224.2	5156.7	6175.9	7395.9	6931.5

Source: Statistics Lithuania. The data have been calculated using the methodology of the OECD System of Health Accounts. Revised data for 2007, preliminary data for 2009

**Table 4.** Lithuanian System of Health Accounts. Health expenditure. Indications: health care functions

	2004	2005	2006	2007	2008	2009
<b>Treatment services</b>						
Health expenditure, in LTL million	1611.3	1875.3	2361.5	2784.6	3476.9	3286.8
Structure of current health expenditure in %	46.5	45.8	48.7	48.2	49	48.1
<b>Rehabilitation care</b>						
Health expenditure, in LTL million	144.8	171.8	207.4	240.1	253.5	233.4
Structure of current health expenditure in %	4.2	4.2	4.3	4.2	3.6	3.4
<b>Long-term nursing services</b>						
Health expenditure, in LTL million	123.1	171.9	194	336.4	520.3	620.5
Structure of current health expenditure in %	3.6	4.2	4	5.8	7.3	9.1
<b>Ancillary health care services</b>						
Health expenditure, in LTL million	150.4	181.1	243.6	332.5	433.8	412.4
Structure of current health expenditure in %	4.3	4.4	5	5.8	6.1	6
<b>Medical goods for outpatients</b>						
Health expenditure, in LTL million	1294	1539.4	1698.5	1844.5	2103.7	2025.9
Structure of current health expenditure in %	37.3	37.6	35	31.9	29.6	29.6

	2004	2005	2006	2007	2008	2009
<b>Prevention and public health services</b>						
Health expenditure, in LTL million	61.6	71.4	60.9	107.5	86.8	78.4
Structure of current health expenditure in %	1.8	1.7	1.3	1.9	1.2	1.1
<b>Health care administration and health insurance</b>						
Health expenditure, in LTL million	81.9	80.5	87.8	128.5	222.8	182.6
Structure of current health expenditure in %	2.4	2	1.8	2.2	3.1	2.7
<b>Current health expenditure</b>						
Health expenditure, in LTL million	3467.2	4091.4	4853.7	5774	7097.9	6839.9
<b>Health-related functions</b>						
Health expenditure, in LTL million	1435.7	1672.8	2094.4	2644.2	3143	3081.9
<b>Capital formation of health care institutions</b>						
Health expenditure, in LTL million	106.9	132.8	303	401.8	298	91.6
<b>Total health expenditure</b>						
Health expenditure, in LTL million	3574.1	4224.2	5156.7	6175.9	7395.9	6931.5

Source: Statistics Lithuania. The data have been calculated using the methodology of the OECD System of Health Accounts. Revised data for 2007, preliminary data for 2009

**Table 5.** Lithuanian System of Health Accounts. Health expenditure. Indications: health care service providers

	2004	2005	2006	2007	2008	2009
<b>Hospitals</b>						
Total health expenditure, in LTL million	1262.8	1545.3	2063.5	2397.1	2709.6	2512.5
Structure of total health expenditure in %	35.3	36.6	40	38.8	36.6	36.2
<b>Nursing and resident care institutions</b>						
Total health expenditure, in LTL million	62.9	72.3	69.8	82.8	104.4	108
Structure of total health expenditure in %	1.8	1.7	1.4	1.3	1.4	1.6
<b>Outpatient health care service providers</b>						
Total health expenditure, in LTL million	703.9	778.7	1031.7	1291.1	1670.8	1550.9
Structure of total health expenditure in %	19.7	18.4	20	20.9	22.6	22.4
<b>Retail companies and other suppliers of medical goods</b>						
Total health expenditure, in LTL million	1285.8	1530.8	1694	1836	2101.9	2024.1
Structure of total health expenditure in %	36	36.2	32.9	29.7	28.4	29.2
<b>Administration of public health programmes</b>						
Total health expenditure, in LTL million	43.1	45.5	35.7	57.1	35.3	19.4
Structure of total health expenditure in %	1.2	1.1	0.7	0.9	0.5	0.3
<b>General health care administration and insurance</b>						
Total health expenditure, in LTL million	154	148.2	139.1	271.6	383.3	229.6
Structure of total health expenditure in %	4.3	3.6	2.7	4.4	5.2	3.3
<b>Other activities</b>						
Total health expenditure, in LTL million	61.7	102.7	117.1	234.6	384.6	477.9
Structure of total health expenditure in %	1.7	2.4	2.3	3.8	5.2	6.9
<b>Other countries</b>						
Total health expenditure, in LTL million	0	0.6	5.6	5.5	6	9.1
Structure of total health expenditure in %	0	0	0.1	0.1	0.1	0.1
<b>Total</b>						
Total health expenditure, in LTL million	3574.1	4224.2	5156.7	6175.9	7395.9	6931.5
Structure of total health expenditure in %	100	100	100	100	100	100

Source: Statistics Lithuania. The data have been calculated using the methodology of the OECD System of Health Accounts. Revised data for 2007, preliminary data for 2009

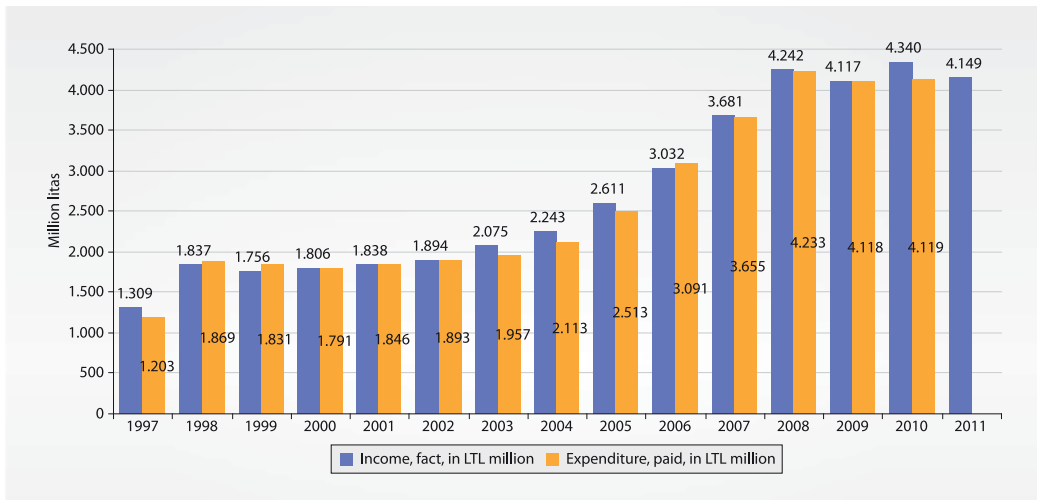
# Compulsory health insurance income and expenditure

Lithuania's largest health sector financial flows are managed by the Compulsory Health Insurance Fund. Based on the data of the System of National Health Accounts, in 2009, Compulsory Health Insurance Fund

expenditure accounted for approximately 88% of total public health funding. Over the period from 1998 to 2010, CHIF income and expenditure increased more than 2.2 times.

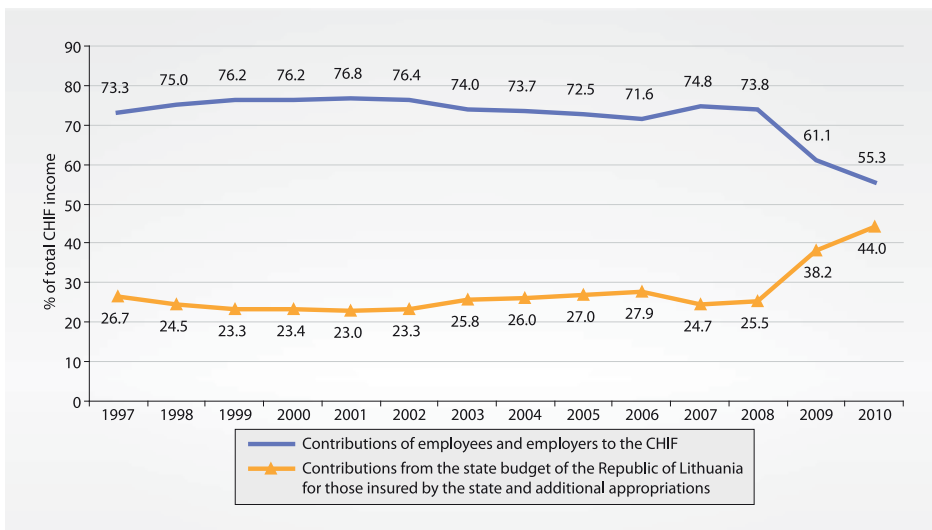
## CHIF income and expenditure

Source: CHIF



In 1997–2008, contributions of employees and employers accounted for the bulk of CHIF income (more than 70%). State budget contributions for those insured by the state

and additional state budget allocations increased in 2009. Therefore, in 2010, state budget funds accounted for 44% of CHIF income.

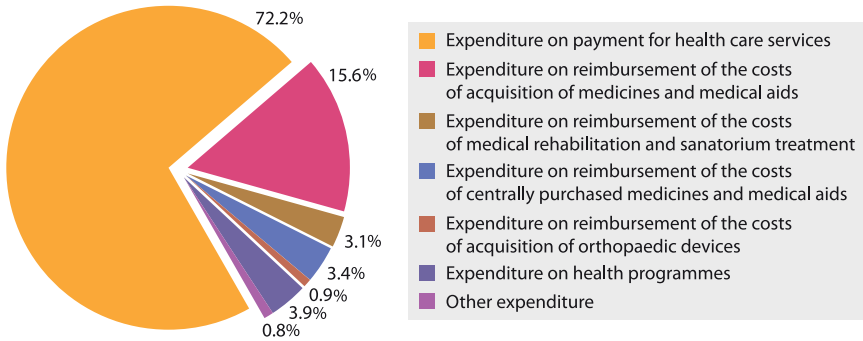


CHIF income, %  
Source: CHIF

In 2010, expenditure on health care services (72%) as well as reimbursement of medicines and medical aids (16%) accounted for the largest share of CHIF expenditure.

### CHIF expenditure structure, 2010

Source: CHIF

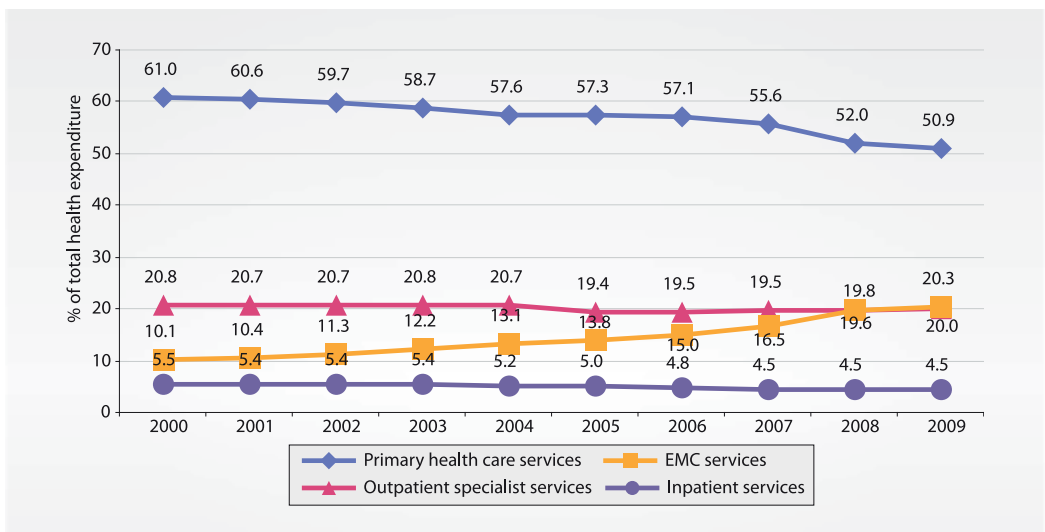


In 2000–2010, CHIF expenditure on health care services grew more than 2.2 times, expenditure on reimbursed medicines and medical aids doubled and that on centrally purchased pharmaceuticals and medical aids grew 5.2 times. The most significant increase (8.7 times) was recorded in expenditure on health programmes.

The share of expenditure on inpatient treatment services in 2000–2009 in the CHIF is shrinking but this expenditure still makes up a major part (approx. 51%) of total expenditure on health care services (2009 data).

Figure: CHIF expenditures on health services

Source: CHIF



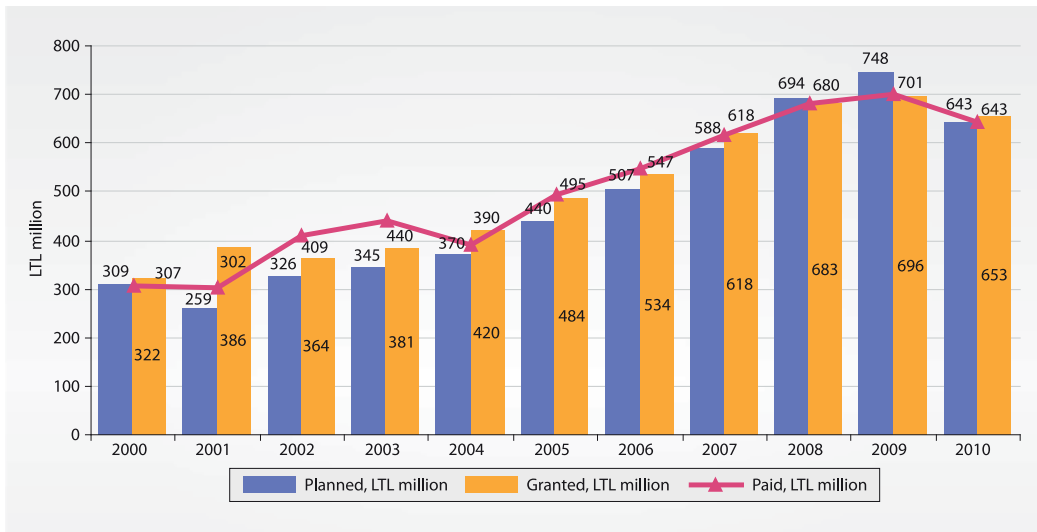
## Expenditure on pharmaceuticals and medical aids

Although CHIF expenditure on the reimbursement of the costs of pharmaceuticals and medical aids increased in 2000–2010, its share as a percentage of total CHIF expenditure shrank to 15.6%; the share of centrally purchased pharmaceuticals and

medical aids grew to 3.4%. Therefore, the share of total expenditure on pharmaceuticals and medical aids as a percentage of total CHIF expenditure remained quite stable (at 19–23%) throughout the period 2000–2010.

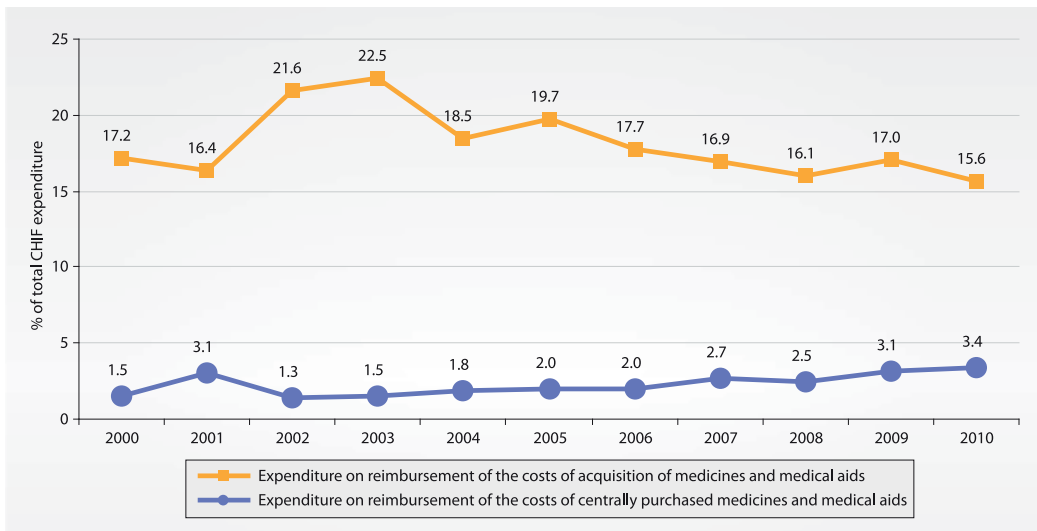
### CHIF expenditure on reimbursement of the costs of acquisition of medicines and medical aids

Source: CHIF



### CHIF expenditure on medicines and medical aids

Source: CHIF

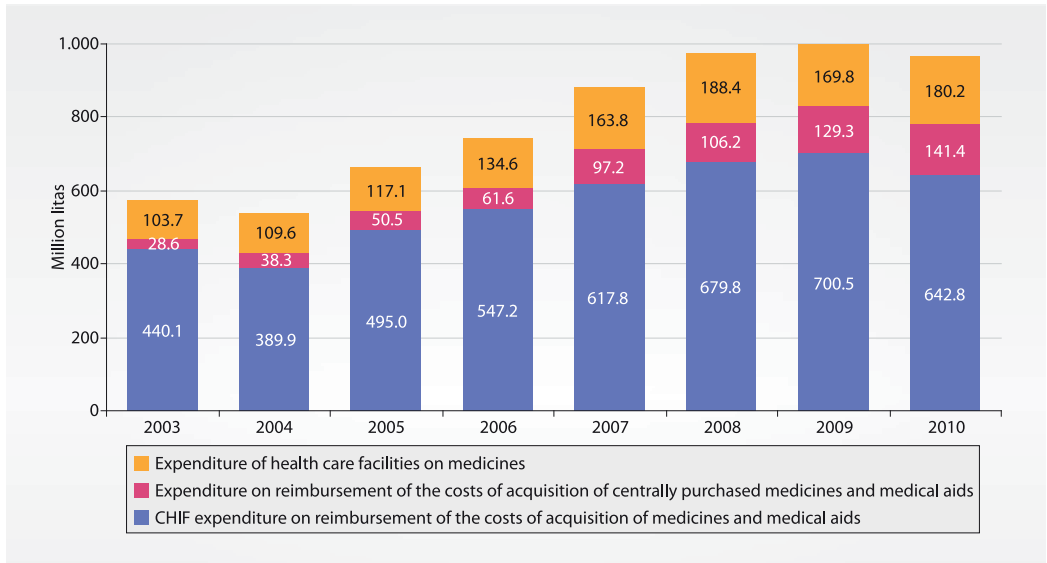


In 2010, health care facilities spent approximately LTL 180 million on pharmaceuticals. Since 2008, the total volume of pharmaceuticals purchased by the CHIF and medical institutions almost reached LTL 1 billion.

As shown in the figures below, in 2010, public expenditure on pharmaceuticals and medical aids made up over LTL 1118 million and total pharmaceutical expenditure exceeded LTL 2 billion, which accounted for about 30% of total health expenditure.

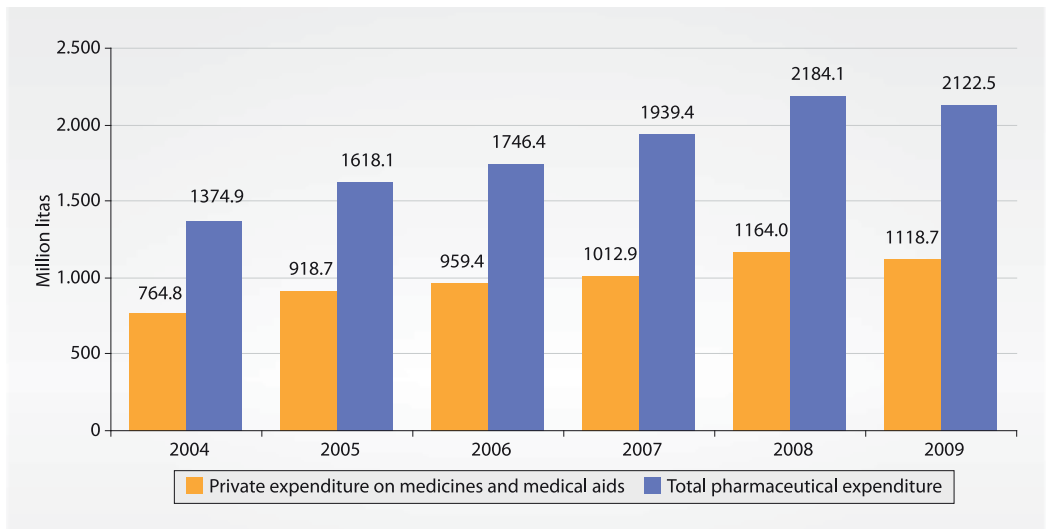
### Total CHIF expenditure on medicines and medical aids

Source: CHIF



### Total pharmaceutical expenditure (according to the National Health Accounts methodology)

Source: Eurostat, Statistics Lithuania



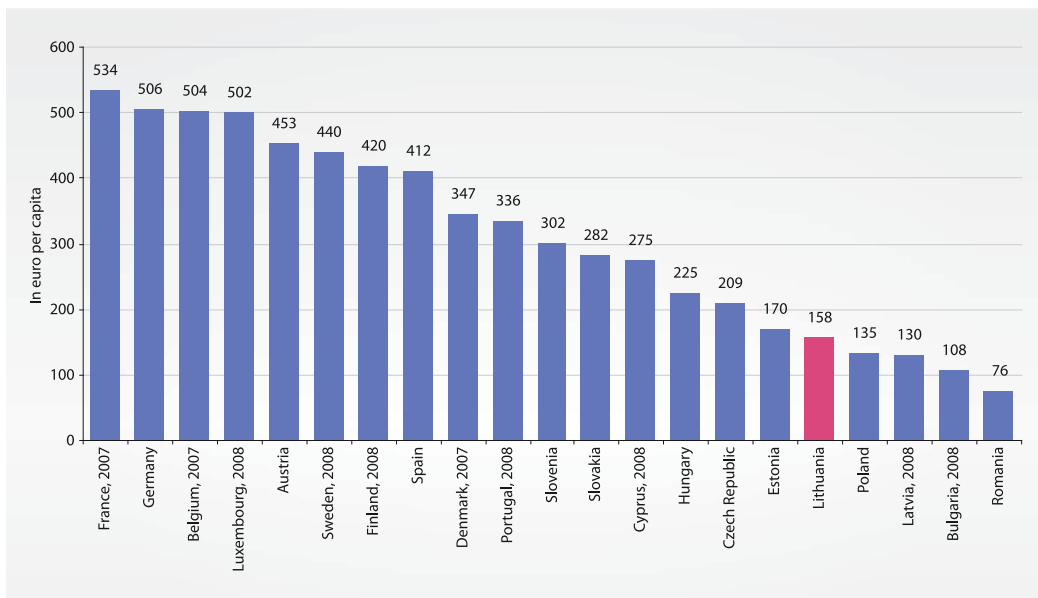


According to Eurostat data, in 2009, total (public and private) pharmaceutical expenditure per capita in Lithuania stood at around EUR 158 and was more than 3 times lower than the respective expenditure per capita in France or Germany. However, compared with the old EU Member States, pharmaceutical expenditure as a percentage

of GDP is higher in Lithuania as well as other new EU Member States, as the prices of medicines in the common EU market are similar. According to Eurostat calculations, in 2006, the prices of medicines in Lithuania made up approximately 70% of the EU average of the prices of medicines.

**Outpatient expenditure on pharmaceuticals and medical aids, in EUR per capita. Comparison with EU Member States, 2009**

Source: Eurostat

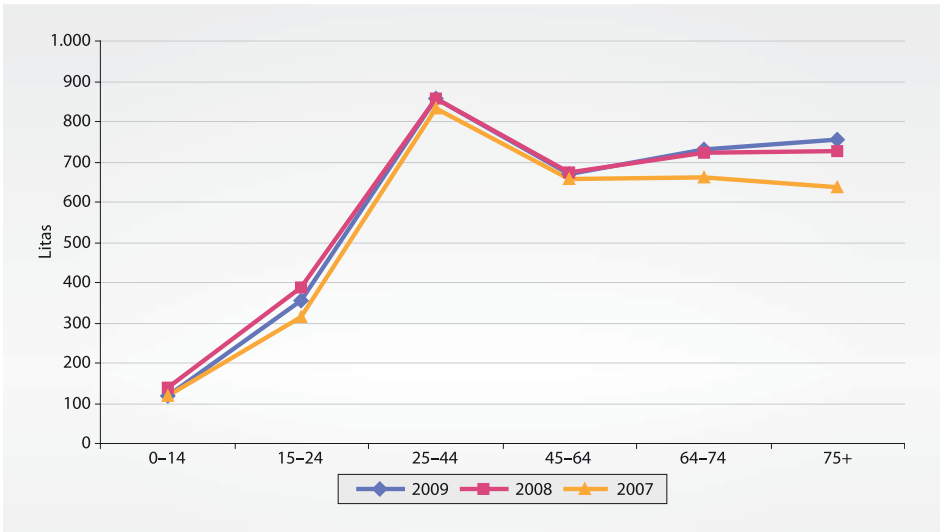


The quantity of pharmaceuticals used depends both on diseases and the country's population age structure. Health insurance

reports by population age group. funds present expenditure on reimbursed medicines and medical aids in their annual

Reimbursed amount of outpatient pharmaceuticals by age group per patient

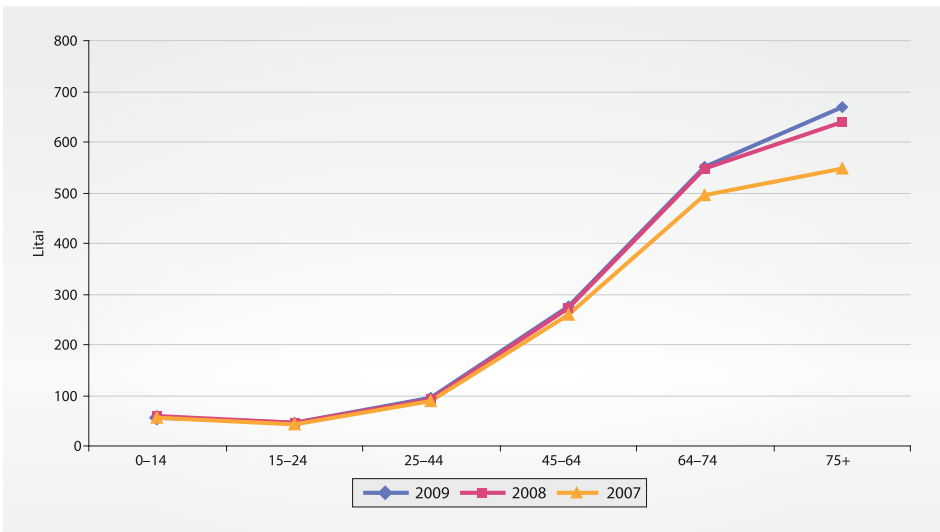
Source: CHIF



As shown in the figure, pharmaceutical expenditure per one statistical citizen by age group little changed in 2007–2009. The bulk of CHIF pharmaceutical expenditure goes to people aged over 44 years.

Reimbursed amount of outpatient pharmaceuticals by age group per capita

Source: CHIF



In 2005–2010, reimbursement of the costs of antineoplastic, genitourinary and sensory system-active agents increased the most, while that of anti-infective and dermatological agents decreased.

**Table 6.** CHIF expenditure on pharmaceuticals and medical aids by disease category (ATC classification group)

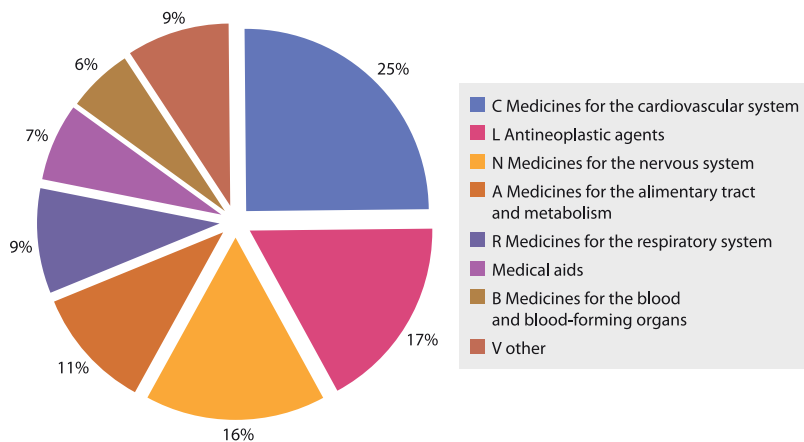
ATC Level 1	CHIF budget expenditure, in LTL thousand						Change in 2010/2005, in %
	2005	2006	2007	2008	2009	2010	
A medicinal products for the alimentary tract and metabolism	54 304	56 500	62 838	68 929	71 593	71 300	131.3
B medicinal products for the blood and blood-forming organs	33 174	35 371	42 036	38 892	45 229	38 826	117.0
D medicinal products for dermatology	3433	2899	3105	3399	3396	2993	87.2
G Medicinal products for the genitourinary system and sex hormones	3198	3764	5842	6660	6383	6052	189.3
Manufactured medicines	373	377	395	440	448	428	114.5
H hormones	6108	6226	6967	8030	7724	7945	130.1
J antiinfectives	17 682	16 844	17 216	12 418	10 764	10 218	57.8
L antineoplastic agents	61 003	80 348	97 589	112 331	118 892	111 440	182.7
M medicinal products for the musculoskeletal system	9707	9483	11 540	12 593	10 915	9056	93.3
Medical aids	28 122	30 925	37 453	45 881	51 999	45 877	163.1
N medicinal products for the nervous system	81 802	91 565	102 400	105 553	106 277	102 805	125.7
P antiparasitic products and insecticides	169	224	216	221	236	254	150.0
R medicinal products for the respiratory system	47 108	50 552	58 769	65 800	63 433	60 241	127.9
S medicinal products for sensory organs	14 547	17 313	20 621	24 048	25 938	22 265	153.1
V other	1693	1446	261	291	326	299	17.6
<b>Total amount</b>	<b>480 398</b>	<b>538 448</b>	<b>624 668</b>	<b>683 223</b>	<b>696 233</b>	<b>653 343</b>	<b>136.0</b>

Source: CHIF

In 2010, the bulk of reimbursement from the CHIF budget went to medicinal products for the cardiovascular system (25%), antineoplastic agents (17%) and medicinal products for the nervous system (16%).

**CHIF expenditure on medicines and medical aids by disease category, 2010**

Source: CHIF



The largest portion of CHIF funds was allocated for medicines for hypertension, diabetes, bronchial asthma and oncological diseases.

**Table 7.** Diseases requiring outpatient treatment with reimbursed medicines costing the largest portion of the CHIF budget

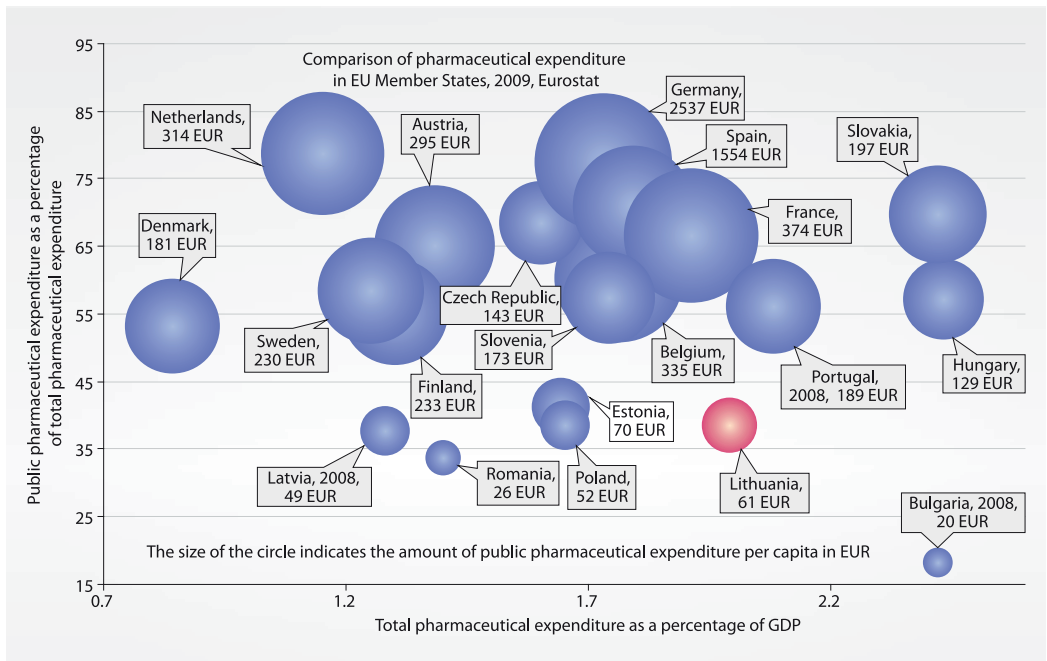
		CHIF budget expenditure in 2009, in LTL million	CHIF budget expenditure in 2010, in LTL million	Change in 2010/2009, in %
I10–I15	Hypertension	149.0	140.0	93.96
E11	Type II diabetes mellitus	65.6	64.0	97.56
J45	Bronchial asthma	40.5	37.4	92.35
C61	Malignant prostatic neoplasms	29.8	27.9	93.62
G35	Multiple sclerosis	21.2	22.4	105.66
F20	Schizophrenia	29.4	22.3	75.85
H40	Glaucoma	25.7	22.1	85.99
E10	Type I diabetes mellitus	18.1	17.9	98.90
C50	Malignant breast neoplasms	18.2	15.4	84.62
B18	Chronic viral hepatitis B and C	17.1	14.8	86.55

Source: CHIF

Lithuanian health system resources allocated for medicines and medical aids in the EU context.

### Comparison with EU Member States

Source: Eurostat, Health Economics Centre (SEC) estimates



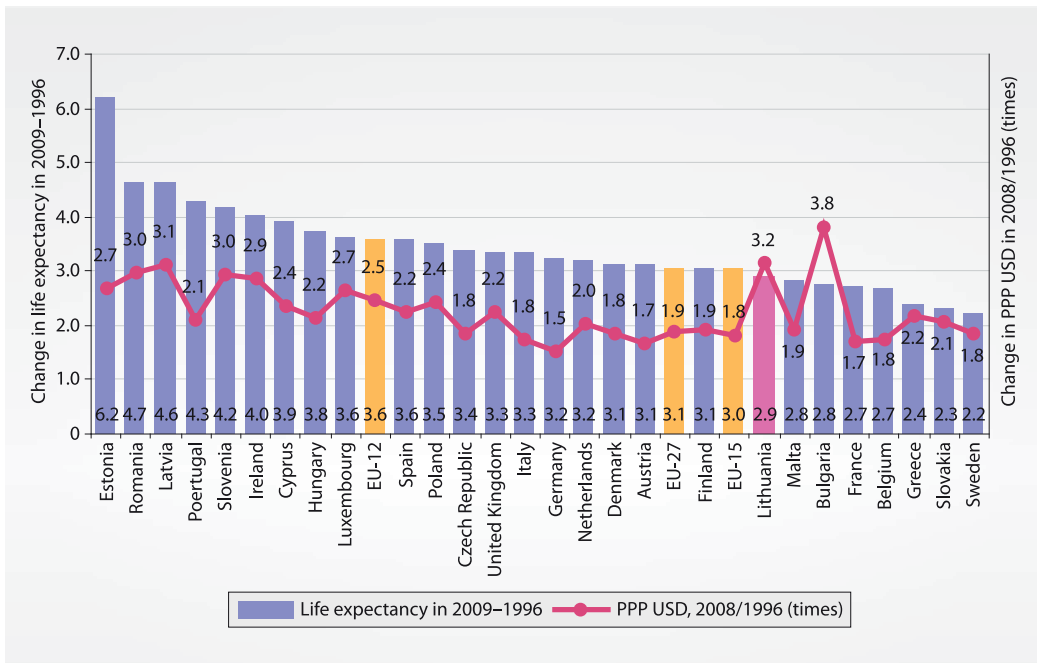
## Evaluation of the results of the previous period

According to WHO data, in 1995–2008, life expectancy in Lithuania increased by 2.9 years and health system funding (adjusted for purchasing power parity) grew 3.5 times. In 1995–2008, life expectancy in most other new EU Member States (except for Bulgaria and Slovakia) increased much more than in Lithuania. Changes in the scope of funding show that Lithuania's increase in funding

was nearly the highest in the entire European Union. It is evident that the growth of health system funding in Lithuania has had much less influence on the health of the country's population than in other new EU Member States. The relatively rapid growth of Lithuanian health sector funding and relatively slow growth of life expectancy indicate health care improvement reserves in Lithuania.

### Comparison of change in life expectancy and change in health expenditure per capita.

Sources: WHO, authors' estimates



Judging from changes in the national health level that resulted from changes in various health determinants in recent years, it is likely that the positive contribution of the health sector was in line with – and even slightly above – the average EU indicators. On the other hand, there were very few positive

lifestyle changes. Owing to moderate progress made in limiting alcohol consumption, obesity and promoting physical activity, life expectancy growth in Lithuania was slow. The gap between the Lithuanian and average EU health indicators widened in 2000–2009.

# OPPORTUNITIES IN 2012–2020

On the basis of mortality and migration rates (without evaluating the 2011 census data), Eurostat has prepared EU population projections. According to these projections, the Lithuanian population will continue to shrink: in 2020, it should reach approximately 3.179.986 and is likely to drop to 2.81 million in 2050.<sup>5</sup>

<sup>5</sup> Eurostat database

Table 8. Population projection

Years	2009	2010	2011*	2012	2013	2014	2015	2016	2017	2018	2019	2020
Total	3.349.872	3.329.039	3.244.601	3.293.174	3.276.567	3.260.909	3.246.156	3.232.159	3.218.767	3.205.813	3.192.800	3.179.986
0–14	504.938	499.299	487.895	493.007	492.300	492.504	493.077	495.872	500.477	506.142	510.664	514.644
15–19	253.555	241.075	223.075	211.481	195.458	185.188	179.643	172.948	165.968	158.953	153.344	148.019
20–29	508.522	510.333	486.477	514.983	515.707	506.456	491.001	474.089	454.285	434.993	417.818	401.333
30–39	460.708	451.231	427.109	434.916	430.068	432.381	437.956	445.203	454.280	462.428	468.116	473.032
40–49	512.864	503.314	487.103	485.872	476.515	466.646	456.699	447.942	439.638	431.422	423.370	416.440
50–59	416.730	426.674	431.744	446.476	455.546	464.104	470.390	472.340	473.022	471.674	467.679	460.540
60–64	156.326	162.712	165.429	171.630	176.569	177.619	177.196	179.263	182.153	186.931	195.871	206.231
65+	536.229	534.401	535.769	534.809	534.404	536.011	540.194	544.502	548.944	553.270	555.938	559.747

\* At the start of the year

Sources: Statistics Lithuania, Eurostat

In order to predict CHIF income, inflation, salaries of medical staff, prices of pharmaceuticals, patients' meals, etc., it is very important to evaluate the labour force and employment situation. According to Eurostat forecasts, the number of working-age people in Lithuania should remain quite stable until 2020 (approx. 61.77% of the country's population).

Little change is also expected in the percentage of the non-active population (aged 0–19 years and 65+) in 2011–2020. It should account for about 38.2% of the country's population. Members of these age groups as well as the disabled belong to the group of persons provided with compulsory health insurance by the state.

In 2012–2020, the number of elderly people will increase, the number of senior pupils and students will drop considerably, and the number of the unemployed and welfare

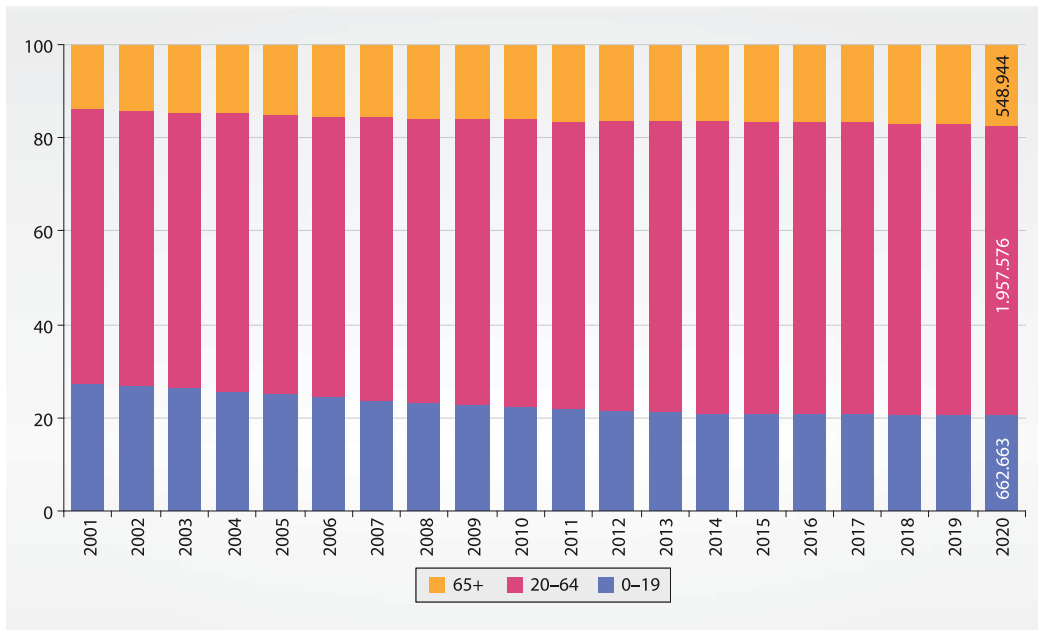
recipients will change as a result of socio-economic changes. The population age structure can be analysed in detail and future trends can be predicted quite precisely by comparing ten-year data on the population in different age groups. According to data available to Statistics Lithuania, the age structure shows a rapid decrease in the number of residents aged 5–14 years in 2000–2010. In 2020, such a decrease will occur in the 15–25 year age group (pupils and students). This means that there will be a lower need for funds to provide these people with compulsory health insurance. Relatively large present groups of young people, particularly in the 20–24 year age group, will result in a relatively high number of births in the next decade, which, unfortunately, will not offset the overall decrease in the number of children and pupils/students. The group of people aged over 75 years considerably expanded in 2000–

2010 and will determine an increase in the number of residents aged over 85 years in the next decade. The ageing of the population will mean higher expenditure on pharmaceuticals and nursing. Taking into account that the

decrease of the group of children/students (in absolute terms) is higher than the increase in the number of elderly people, the total number of persons insured by the state in the group of children/students/pensioners will decline.

### Population and forecast for 2000–2020 by age group

Source: Statistics Lithuania, Eurostat



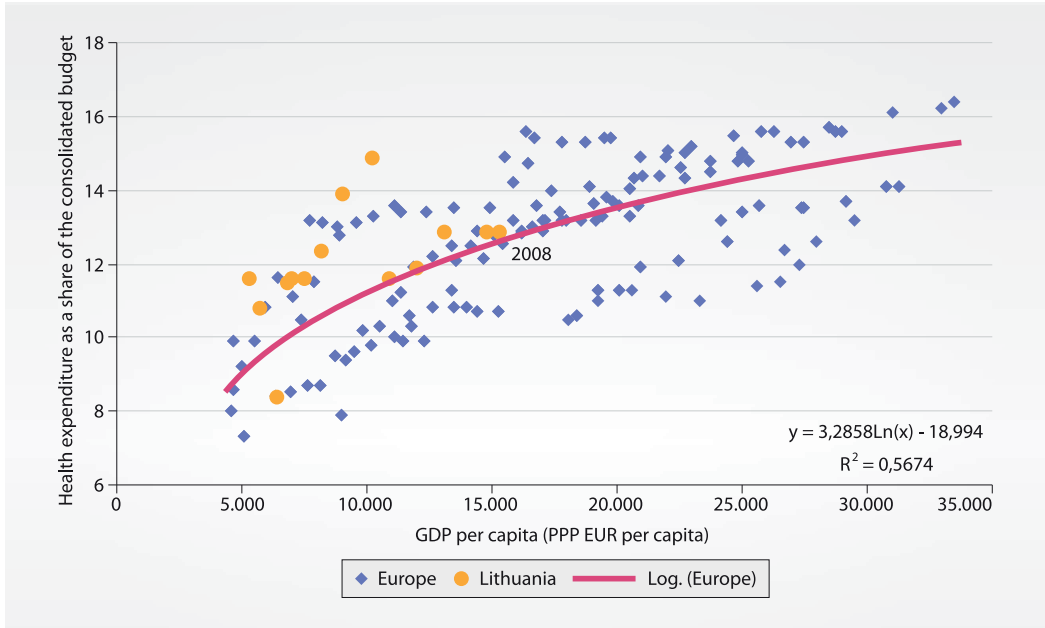
Prognostic calculations based on the Eurostat projections for changes in the population and the age group structure show that a demographic impact on CHIF expenditure exists but is not strong, only 1.4% cumulative growth of CHIF per decade. If the presented projections prove true, in 2011–2020 (like in 2000–2009), demographic changes will be a significant but not a key factor in the change of CHIF expenditure.<sup>6</sup>

The richer the country, the higher its relative expenditure on its citizens' health. Health expenditure of EU Member States is well defined by their wealth. There has been no reliable connection between GDP growth and health expenditure in Lithuania in the last decade.

<sup>6</sup> WHO, Health Economics Centre (SEC)

## Health expenditure as % of the consolidated budget. Comparison with European region countries

Source: WHO, authors' estimates

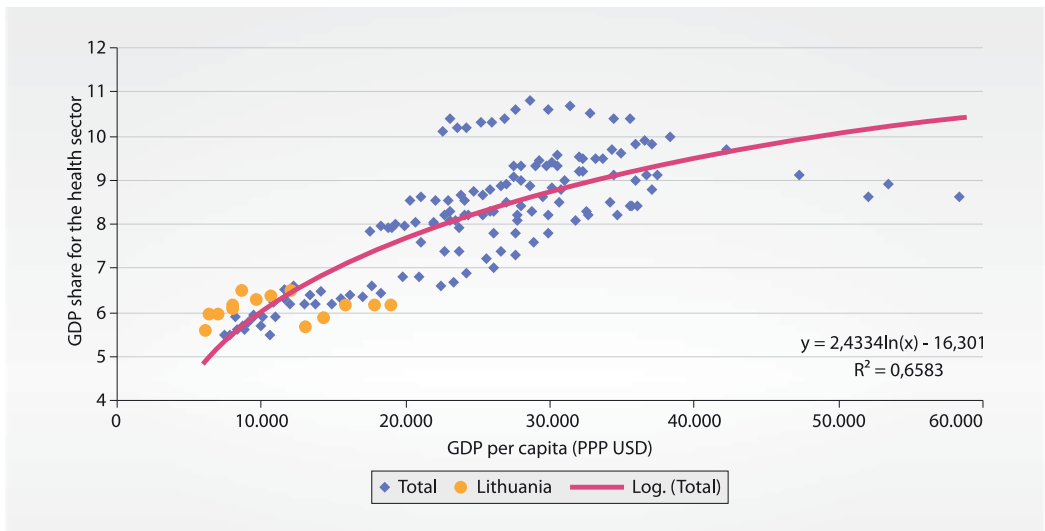


Rich countries allocate relatively more public expenditure on their citizens' health. In Lithuania, like in most EU Member States, budget expenditure on health is well defined

by its wealth, but Lithuania is hesitant about the stability of funding. Opportunities to cut health expenditure are a constant topic of the country's policy debates.

## Health expenditure as % of GDP. Comparison with European region countries

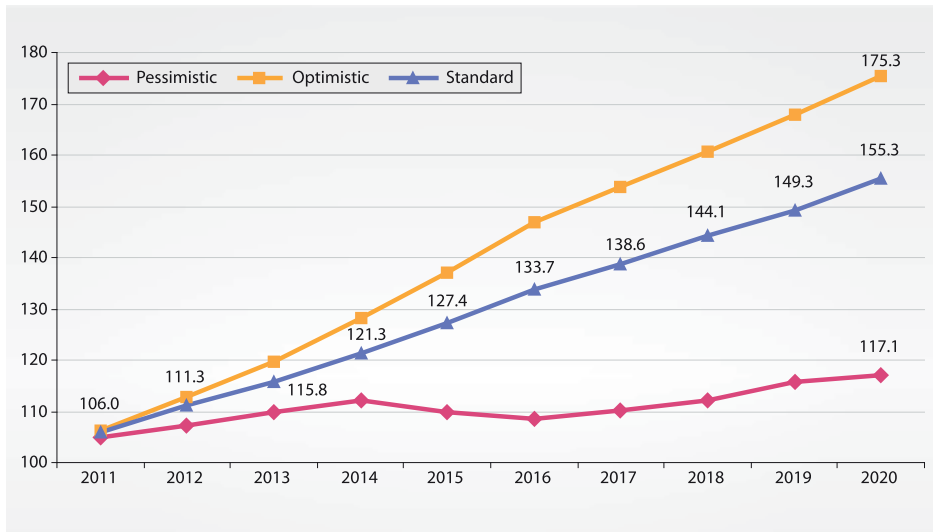
Source: WHO, authors' estimates





If Lithuania increases health funding in the next decade at a similar pace as most EU Member States, i.e. moderately exceeding GDP growth, GDP dynamics will be a key indicator of health system development.

Future events may develop according to a number of scenarios. Economic growth may be relatively fast, but multiannual stagnation is also likely (although the likelihood is not high).

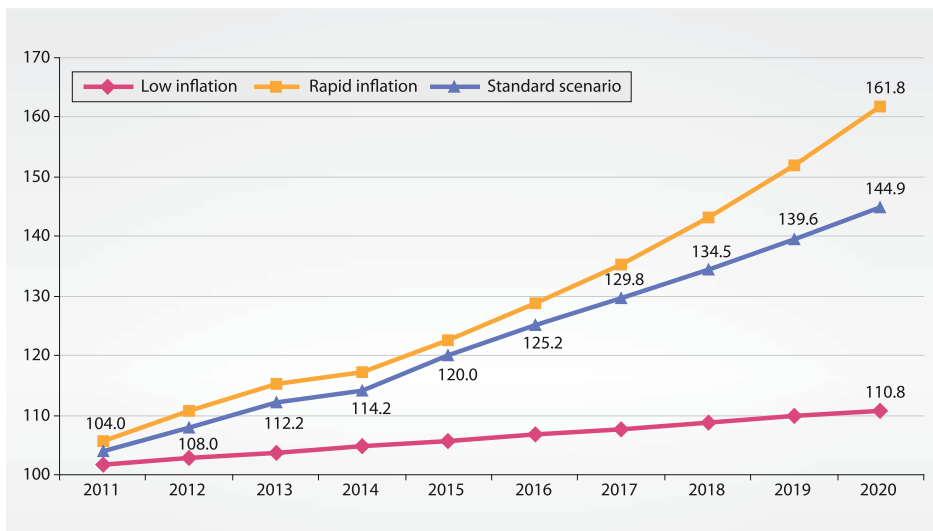


GDP forecast, 2010 = 100  
Source: authors' estimates

Prices may remain more or less stable, but may also grow rapidly.

CHIF expenditure is calculated based on the change in GDP, assuming that prices will change according to a standard scenario.

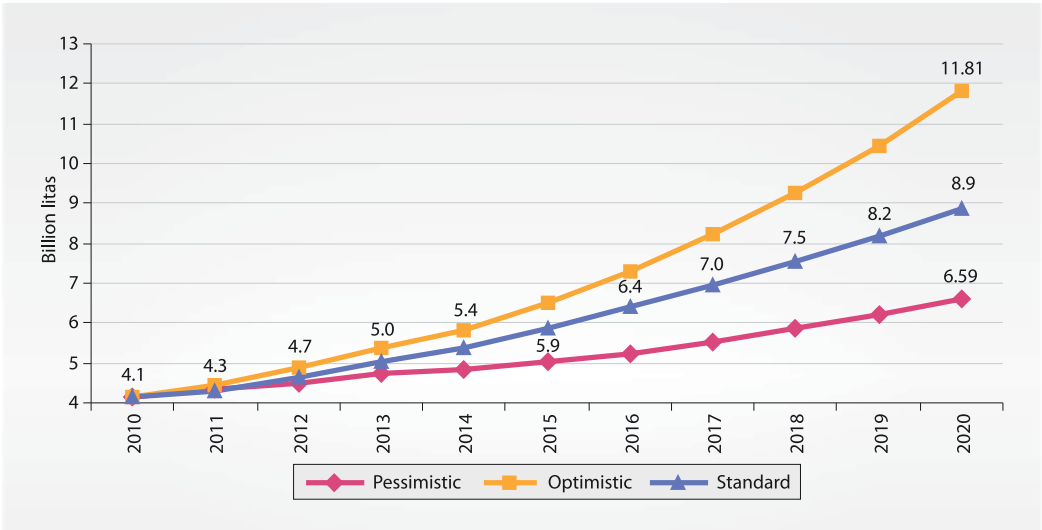
According to a pessimistic scenario of Lithuania's development, given slow economic growth, health funding will hardly increase as well. On the other hand, it is likely that in ten years the CHIF budget will be twice bigger than in 2010.



Inflation forecast, 2010 = 100  
Source: authors' estimates

## CHIF health expenditure forecast

Source: authors' estimates

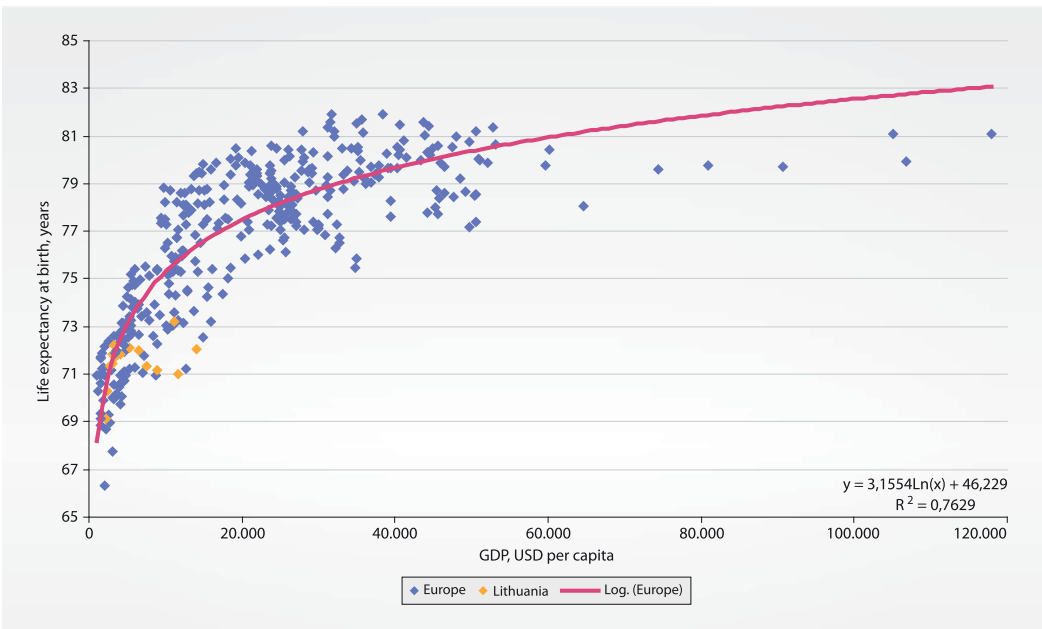


The CHIF revenue forecast is based on the assumption that health expenditure in Lithuania will grow faster than GDP. Statistical data on European countries provide strong

statistical evidence that GDP growth followed by growth in health expenditure leads to an increase in life expectancy.

## Life expectancy and economic growth

Source: WHO



# LITHUANIAN POPULATION'S ATTITUDE TOWARDS HEALTH ISSUES

The *Lithuanian Health Programme 2020* will be finalised and submitted to the Parliament for approval in 2012. Prepared on the basis of international and national experience and health values, the programme will analyse health reserves in the lifestyle, environment and improvement of the quality of health services, and will set the main health tasks. The main objective of the new programme is “extension of healthy life expectancy”. It is realistic to increase life expectancy from 73.4 years in 2010 to 76 years in 2020. The achievement of this goal requires joint actions of the Government, all economic sectors, communities and families in the name of the health of the country’s population. The period 2011–2020 could become a *Decade of Health* for not only the medical community but also entire Lithuania. If the main health troubles of Lithuania are solved, 30 000 lives can be saved and the health of the majority of

the population can be significantly improved by 2020.

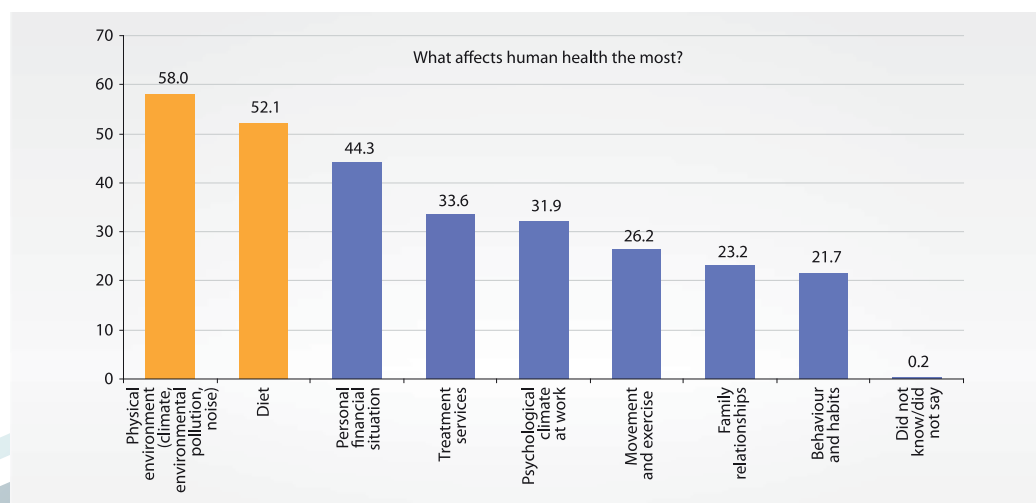
A representative survey<sup>7</sup> commissioned by the Ministry of Health was carried out in the course of the preparation of the new Lithuanian Health Programme, in June 2011, to find out public opinion on health and health policy issues.

The representative survey of the Lithuanian population has shown that the majority of the population understands that the lifestyle and living environment have the strongest impact on health.

<sup>7</sup> The survey was carried out in the framework of the project “Health System Reform Analysis” in the course of the implementation of Project No. VP1-4.2-VRM-05-V-01-004 of the Ministry of Health of the Republic of Lithuania “Systemic analysis of health sector reforms in order to improve the implementation of the European Union health policy” under the Measure VP1-4.2-VRM-05-V “Improved implementation of European Union policies” implementing Priority 4 “Strengthening administrative capacities and increasing efficiency of public administration” of the Operational Programme for Human Resources Development for the Period 2007–2013.

## Representative survey of Lithuanian public opinion

Source: Project “Performance of Health System Reform Analysis”



# Bibliography and references

1. Aghio, Philippe et al (2004) The Effect of Financial Development on Convergence: Theory and Evidence Retrieved October 23, 2011 from [http://www.degit.ifw-kiel.de/papers/degit\\_09/C009\\_021.pdf](http://www.degit.ifw-kiel.de/papers/degit_09/C009_021.pdf)
2. Annual reports on the execution of the state budget of the Republic of Lithuania for 2003–2010
3. Blanchard, Olivier (2000). Macroeconomics (Second ed.). Prentice Hall. ISBN 0-13-013306-X
4. Černiauskas, Gediminas et al. Finansų valdymo sistemos optimizavimas: studija: 2012 m. vasario 22 d. [elektroninis išteklius] / Vilnius: Sveikatos ekonomikos centras, 2012, 169 p. : 100 p.
5. Černiauskas, Gediminas et al. Lietuvos sveikatos sektorius amžių sandūroje : [kolektyvinė monografija] / Lietuvos sveikatos mokslų universitetas, Mykolo Romerio universitetas. Vilnius : Sveikatos ekonomikos centras, 2010, 408 p. : iliustr, lent. ISBN 9789955562757
6. Convergence Report 2010, European Economy 3/2010. 236 p. ISSN 0379-0991. European Commission
7. Compulsory Health Insurance Fund (CHIF)
8. European Bank of Reconstruction and Development (2010) Transition report 2010: Recovery and Reform
9. Eurostat Database <http://epp.eurostat.ec.europa.eu/portal/page/portal/eurostat/>
10. Health Statistics Lithuania/Center of Health Information, Institute of Hygiene
11. Ministry of Finance of the Republic of Lithuania Lithuania's economic projections [http://www.finmin.lt/web/finmin/aktualus\\_duomenys/makroekonomika](http://www.finmin.lt/web/finmin/aktualus_duomenys/makroekonomika)
12. Ohnsorge F., Obiora K. (2008) 'Republic of Lithuania: Selected Issues' IMF Country Report April
13. Statistics Lithuania. Databases <http://www.stat.gov.lt/en/>
14. WHO, European Health for All Database
15. World Health Organization Regional Office for Europe, European Mortality Database (MDB)
16. WHO, World Health Statistics
17. World Bank database <http://data.worldbank.org/>
18. World Economic Outlook: Slowing Growth, Rising Risks September 2011, International Monetary Fund <http://www.imf.org/external/pubs/ft/weo/2011/02/index.htm>

# HEALTH STUDIES: **LITHUANIA 2012**

Convergence of European Health Systems

Prepared by  
SVEIKATOS EKONOMIKOS CENTRAS  
(Health Economics Centre, SEC)  
P. VILEIŠIO ST. 18N-301, LT-10306 VILNIUS  
TEL. +370 5 234 6370, E-MAIL: INFO@SEC.LT  
WWW.SEC.LT

Designer  
VIDAS ČERKAUSKAS

Print run 500 copies. Order no. 878

Publishing  
UAB „PETRO OFSETAS“  
SAVANORIŲ AVE. 174D, LT-03153 VILNIUS

