# Health in the Baltic Countries 2015

24th edition

HIGIENOS INSTITUTAS

Slimību profilakses un kontroles centrs

Tervise Arengu Instituut
National Institute for Health Development

National Institute for Health Development, Estonia
The Centre for Disease Prevention and Control, Latvia
Health Information Centre of Institute of Hygiene, Lithuania

# Health in the Baltic Countries 2015

24th edition

2017

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**Abbreviations and symbols:**

| | |
|---|---|
| Estonia | EE |
| Latvia | LV |
| Lithuania | LT |
| European Union (28 countries) | EU-28 |
| Data not available | ... |

**Data sources:**
**Estonia**: National Institute for Health Development including Estonian Medical Birth Registry, Estonian Abortion Registry, Estonian Causes of Death Registry, Estonian Tuberculosis Registry and Estonian Cancer Registry; Statistics Estonia; Estonian Health Board; State Agency of Medicines.
**Latvia**: Central Statistical Bureau of Latvia, The State Agency of Medicines of Latvia, Register of Medical Persons and Medical Support Persons, National Health Service, Register of Causes of Death, State Register of HIV/AIDS cases, National TB Registry, Register of Patients with Particular Diseases.
**Lithuania**: Statistics Lithuania, Institute of Hygiene, Compulsory Health Insurance Fund, State Medicines Control Agency, Centre for Communicable Diseases and AIDS, Vilnius University Hospital Santara Clinics (Tuberculosis Registry), National Cancer Institute (Cancer Registry).

The following report is ordered by National Institute for Health Development in 2017.
When using or quoting the data included in this issue, please indicate the source:
*Health in the Baltic Countries 2015*. Tallinn: National Institute for Health Development; 2017.

Layout, graphics and printed by: Puffet Invest OÜ

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ISBN 978-9949-461-79-0 (Print)
ISBN 978-9949-461-80-6 (PDF)

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# PREFACE

"Health in the Baltic Countries 2015" is the twenty fourth edition of the series and is aimed at providing a basis for the comparison of health statistics of the three Baltic states – Estonia, Latvia and Lithuania.

The report presents an overview of the Baltics' health related indicators in 2015 compared with previous years. The publication is divided into three chapters. The first chapter includes information concerning socio-economic data, population structure, life expectancy, healthy life years, health behaviour and fertility indicators. The second chapter focuses on mortality and morbidity. The last part compares health care services and resources and their use.

The most important sources of data for this publication were various institutions, registries and national statistics offices. World Health Organization Health for All database, Eurostat database and Organisation for Economic Co-operation and Development database were the sources for data of other European countries and the European Union average.

More information can be obtained from the countries' health related institutions and national statistics offices websites, and their online databases. The main references are presented on the back cover.

# POPULATION AND HEALTH STATUS

# General data

The population in all three Baltic countries has been decreasing steadily during the last decades. At the beginning of 2016, the population of Lithuania was 2.89 million, in Latvia 1.97 million, and in Estonia 1.32 million people. Compared to ten years ago, it is 12.2% less for Lithuania, 11.6% less for Latvia and 2.6% less population for Estonia.

In ten years comparison the population of capital city increased only in Tallinn, for about 7%. The number of inhabitants in Vilnius decreased for 2% and in Riga for about 13%. Despite the differences in population change in capital cities, the distribution of the overall urban-rural population remained quite similar – 69% of Estonian, 68% of Latvian and 67% of Lithuanian population lived in cities.

**Comparing to the year 2006, the population has decreased by 12.2% in Lithuania, 11.6% in Latvia and 2.6% in Estonia by 2016.**

The share of the working age people from total population has remained over 60% for every Baltic country since the beginning of 2003, but it is mainly due to raise of the official upper working age limits. While at the beginning of nineties, the retirement age was 59 years for men and 54 years for women in all Baltic countries, it has been raising remarkably since 1996. By the beginning of 2016, the earliest official age for retirement in the Baltics was 61 years and 4 months for Lithuanian women and the latest age for retirement was 63 years and 2 months for Lithuanian men.

## Working age on 1st January 2016

| | Estonia | Latvia | Lithuania |
|---|---|---|---|
| Males | 16–63 y. | 15–62 y. 9 m. | 16–63 y. 2 m. |
| Females | 16–63 y. | 15–62 y. 9 m. | 16–61 y. 4 m. |

The unemployment rate among working age population was highest in Latvia – 10.1%, followed by Lithuania – 9.1% and Estonia – 6.4%. Comparing to the year before the unemployment rate decreased by 1–1.8 percentage points in all countries. Occupationally most active elderly people were in Estonia. The employment rate among people aged 65–74 in Estonia was 22%, which is one and a half times higher than in Latvia and almost twice as high as in Lithuania, where it was 12.4%.

## General data

| | Estonia | Latvia | Lithuania |
|---|---|---|---|
| Official name of the state | Republic of Estonia (Eesti Vabariik) | Republic of Latvia (Latvijas Republika) | Republic of Lithuania (Lietuvos Respublika) |
| Independence Day | 24 February (1918) | 18 November (1918) | 16 February (1918) |
| Governing body of the state | Parliament (Riigikogu), 101 members, elected for a period of 4 years | Parliament (Saeima), 100 members, elected for a period of 4 years | Parliament (Seimas), 141 members, elected for a period of 4 years |
| Governmental structure | Republic, the President is elected for the period of 5 years | Republic, the President is elected for the period of 4 years | Republic, the President is elected for the period of 5 years |
| Area (thousand km$^2$) | 45.2 | 64.6 | 65.3 |
| Administrative units at the beginning of 2016 | 15 counties, 213 administrative units with local governments, incl. 30 cities, 183 rural municipalities | 9 cities, 110 municipalities | 10 counties, 60 municipalities, 103 cities and towns |
| Capital, resident population (thousand) at the beginning of 2016 | Tallinn 423.4 | Riga 639.6 | Vilnius 543.5 |
| State language | Estonian | Latvian | Lithuanian |
| Currency: Euro=100 cents | Since 2011 1 EUR = 15.6466 EEK | Since 2014 1 EUR = 0.7028 LVL | Since 2015 1 EUR = 3.4528 LTL |

## Demographic and socio-economic indicators, 2015

| | Estonia | Latvia | Lithuania |
|---|---|---|---|
| Human Development index and world rank (WR) | 0.861 WR: 30 | 0.819 WR: 46 | 0.839 WR: 37 |
| Gross Domestic Product (GDP) per capita, EUR | 15 405.1 | 12 314.0 | 12 851.0 |
| Gross National Income (GNI) per capita, EUR | 15 086.8 | 12 271.0 | 12 332.2 |
| Employment rate among working age population, % | 73.5 | 68.1* | 67.2 |
| Employment rate among population aged 65–74, % | 22.0 | 14.2 | 12.4 |
| Annual average unemployment rate among working age population, % | 6.4 | 10.1* | 9.1 |
| Monthly average gross wage, EUR | 1 065.0 | 818.0 | 714.1 |
| Monthly average old-age pension, EUR | 365.6 | 273.4 | 244.0 |

* Population aged 15–64

**In 2015, the unemployment rate decreased by 1.0 percentage points in Latvia, by 1.3 in Estonia and by 1.8 percentage points in Lithuania comparing to 2014.**

In 2015, the monthly average gross wage in Lithuania was one-third lower and in Latvia about a quarter lower than in Estonia. However, Estonia has claimed to be the country with the biggest gender pay gap in Europe. According to Eurostat, the gap reached almost 27% in 2015, which is two times higher compared to Lithuania and one and a half times higher than in Latvia. Compared with the year before, the increase in wages was highest in Latvia – 6.9%, followed by Estonia with 6.0 and Lithuania with 5.4%. Although the monthly average gross wage and average old-age pension differs in all three countries, the average ratio of old-age pension to monthly gross wage is quite similar – about 34%.

# Population

The population structure of the three Baltic countries is characteristic to the ageing society. The proportion of young people is decreasing. Low births rates are the main reason lying behind that. However, when analysing the population change among young age groups in last ten years, a substantial decrease due to the emigration and also mortality occurs. The number of young people aged 15–24 in 2006 decreased for 3.5% on average in Estonia, for 20% in Latvia, and even 22% for Lithuania by the year 2016, which is by the time this group reached the age 25–34.

Although the mortality rates for younger age groups have declined significantly in all three Baltic countries during the decade – for about one-third, the differences between countries have remained. Over these years, the death rates for the age group 15–34 in Lithuania have been on average one-third higher than in Estonia, while the average difference of Estonian and Latvian rates has been about 10%. The major reason behind the decrease in younger age groups population in Latvia and in Lithuania is bigger emigration rates. According to Eurostat data for the period of 2005 to 2015, emigration has exceeded immigration in all three countries, with the only exception for Estonia in 2015. In Lithuania and in Latvia

## Total population on 1st January 2016

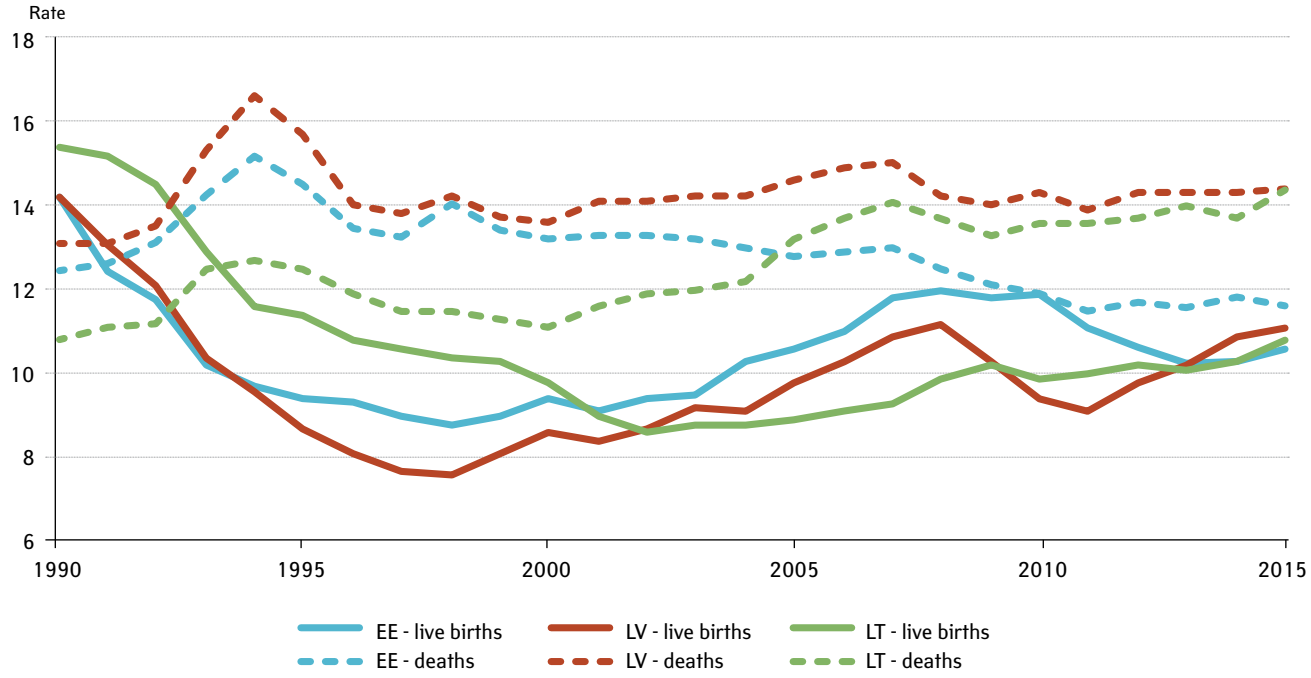
| | Estonia | Latvia | Lithuania |
|---|---|---|---|
| Population (thousand) | 1 315.9 | 1 969.0 | 2 888.6 |
| Per 1 km$^2$ | 30.3 | 30.5 | 44.2 |
| Urban (thousand) | 902.3 | 1 339.7 | 1 943.2 |
| % from total population | 68.5 | 68.0 | 67.3 |
| Rural (thousand) | 413.6 | 629.2 | 945.4 |
| % from total population | 31.4 | 32.0 | 32.7 |
| Males (thousand) | 616.7 | 904.3 | 1 329.6 |
| % from total population | 46.9 | 45.9 | 46.0 |
| Females (thousand) | 699.2 | 1 064.7 | 1 559.0 |
| % from total population | 53.1 | 54.1 | 54.0 |
| Below working age, % | 17.0 | 15.2 | 15.7 |
| Working age, % | 62.7 | 61.5 | 62.0 |
| Above working age, % | 20.3 | 23.2 | 22.3 |

the migration rates per population have been on average five times higher than in Estonia.

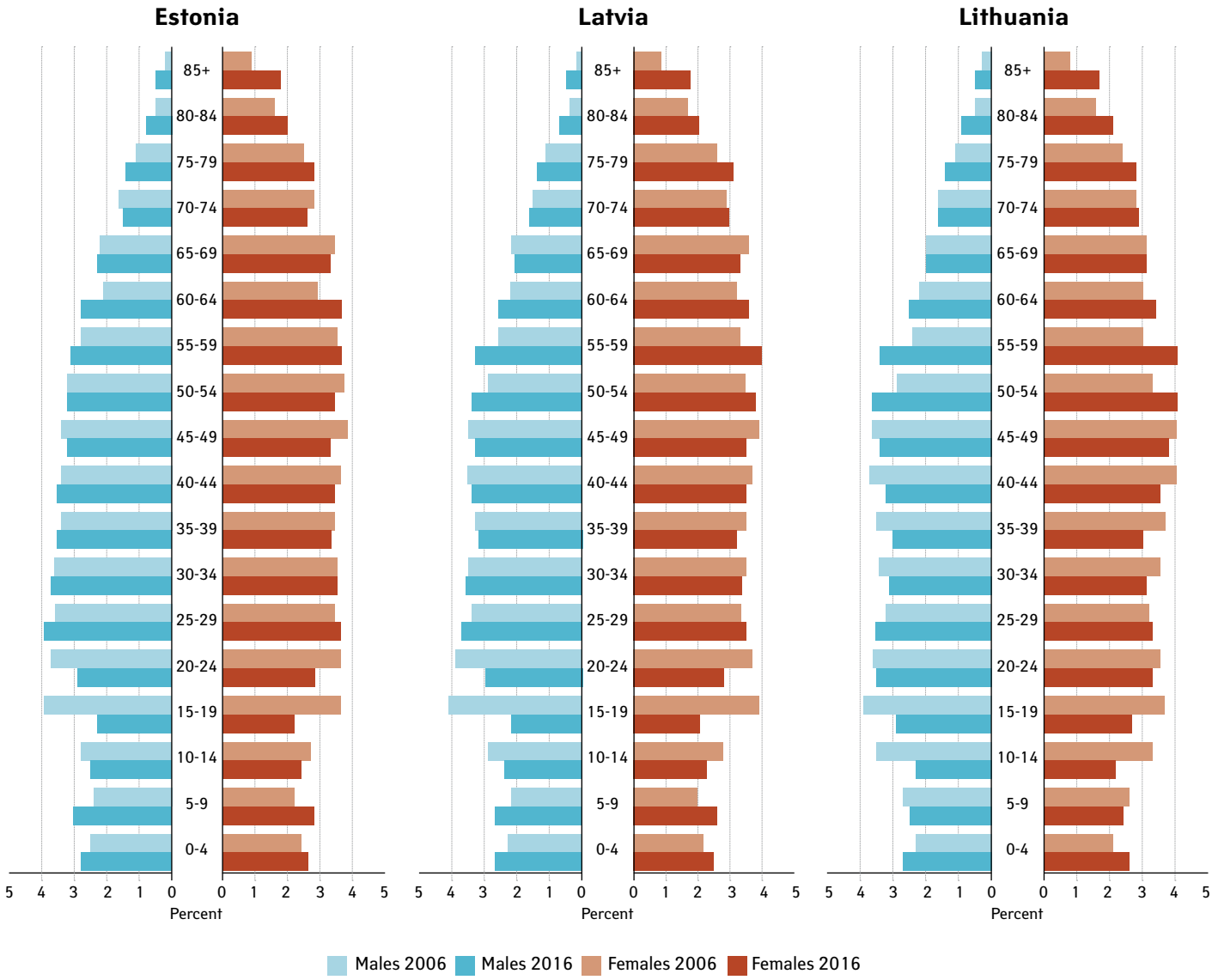
The average natural increase per 1000 population during the period 2005–2015 was negative for all three Baltic countries: -1.0 for Estonia, -4.1 for Latvia and -3.8 for Lithuania. The only time the number of births exceeded the deaths occurred in 2010 in Estonia, while the natural increase rate was 0.03. However, since 2011 the birth rate in Estonia has been declining again, whereas in Latvia and Lithuania it is moving upward. In 2015, there were 10.6 live births per 1000 population registered in Estonia, 10.8 in Lithuania and 11.1 in Latvia.

**The natural increase per 1000 population in 2015 was -1.0 in Estonia, -3.3 in Latvia and -3.6 in Lithuania.**

## Births and deaths per 1000 population, 1990–2015



## Population structure by sex and age on 1st January 2006 and 2016 (percentage of total population)



# Life expectancy

The average life expectancy (LE) at birth is below the European Union (EU) average for all three Baltic countries. In 2015, the EU average LE was 77.9 years for men and 83.3 years for women. Among men, Latvia and Lithuania have the lowest LE rates in EU (69.7 and 69.2 years respectively), Estonian men are in the seventh place from behind (73.2 years). It means that men's life span in Lithuania is about 9 years, in Latvia about 8 and in Estonia approximately 5 years shorter than the EU average. The life span of women in Latvia and Lithuania is about four years and in Estonia about one year shorter than the EU average – 83.3 (LE rates respectively: 79.5, 79.7 and 82.2 years).

**Men's life span in Lithuania is about 9 years, in Latvia about 8 and in Estonia approximately 5 years shorter than the EU average.**

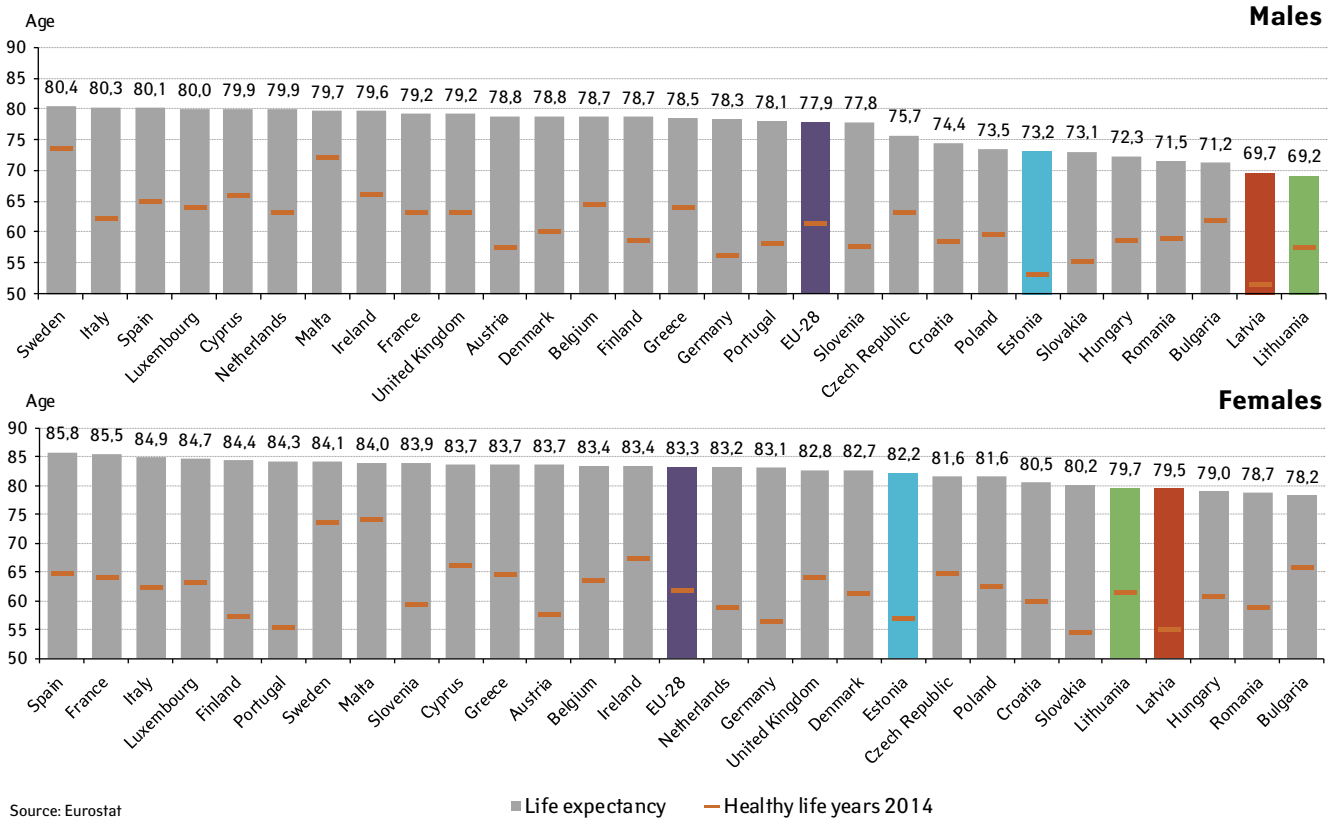
Comparing to 2005 the LE at birth has increased for both men and women in all three Baltic countries. The biggest growth appeared for Estonian men – 5.6 additional years of life gained. The increase in life years for Latvian men was 4.8 and for Lithuanian men 4.0 years. Among women, the growth was expressed in 2.3 additional years in Lithuania, 3.2 years in Latvia and 4.0 years in Estonia.

The LE for women is generally higher than for men, and the difference is 5.4 years on average in EU. However, the biggest gender gap in life expectancy is represented in the Baltic countries again with 9.0 years in Estonia, 9.8 years in Latvia and 10.5 years in Lithuania.

**The gender gap in LE for men and women was about 5 years in the EU on average, but about 10 years in the Baltic countries in 2015.**

The average LE at age 65 in the EU was 17.9 years for men and 21.2 years for women in 2015. The LE for men in Baltics was lower by two and a half years in Estonia and about four years in Latvia. For women of the same age the LE was lower by half a year in Estonia and about two years in Latvia and Lithuania.

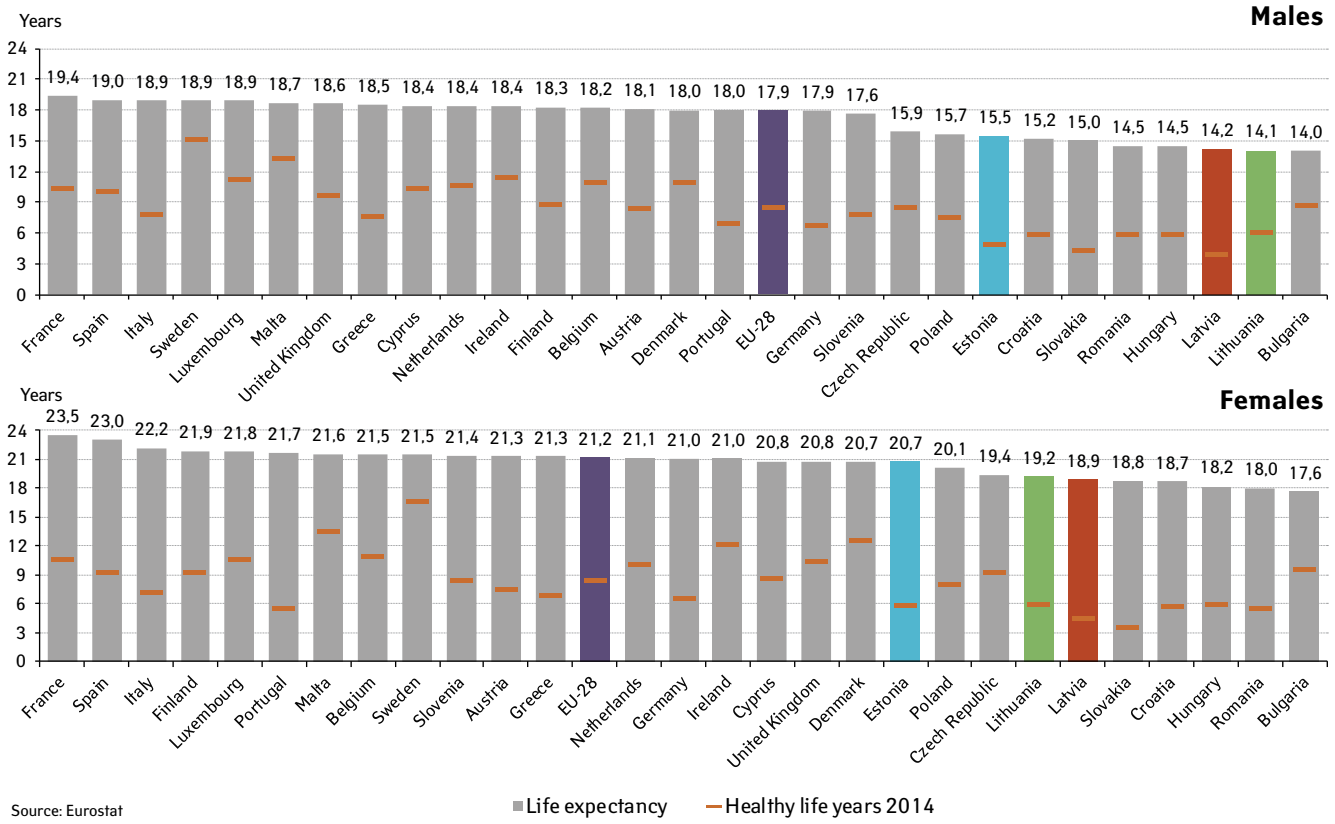
## Life expectancy and healthy life years at birth in the EU member states, 2015




Source: Eurostat

Although Estonia has longer average LE among the Baltics, the proportion of time lived without health-related limitations affecting daily activities, or so called healthy life years (HLY), are higher in Lithuania – 57.6 years for men and 61.7 years for women. In 2014, HLY formed 83% of the total LE among Lithuanian men, comparing to 75% of Latvian and 73% of Estonian men. For women, HLY formed 77% of the LE in Lithuania and 70% for Estonian and Latvian women.

## Life expectancy and healthy life years at 65 years of age in the EU member states, 2015




Source: Eurostat

In 2015, LE at age 65 for men was 15.5 years in Estonia, 14.2 in Latvia and 14.1 in Lithuania. The LE for women at age 65 was 20.7 years in Estonia, 18.9 in Latvia and 19.2 in Lithuania. Despite the higher LE for women, HLY formed a larger proportion of the LE for men than for women in every Baltic country. In 2014, the EU average HLY at age 65 for both, men and women was 8.6 years. HLY for men and women in the Baltics were respectively on average 3.6 and 3.0 years shorter.

# Health behaviour

There are no big differences in the physical activity among men or women in Baltic countries. However, men and women in the Baltics are much less physically active than in the EU on average. About a quarter of men and one-fifth of women reported spending at least 2.5 hours per week on physical non-work related activity. At the same time about one-third of men and a quarter of women in the EU are engaged in such activity.

**The share of overweight and obese population aged 15+ is 52% in Estonia, 55% in Latvia and 53% in Lithuania.**

Both men and women in Estonia and Lithuania eat more fruits and vegetables than in Latvia. The share of persons eating vegetables and fruits at least once a day is over 40% for men and over 50% for women in these two countries. Whereas only over 30% of men and over 40% of women in Latvia declared to do the same. Estonians and Lithuanians are eating even slightly more vegetables than in the EU on average – about 6% more for men and 3% more for women.

The total share of overweight and obese men in the Baltics and in the EU differs only by couple of percentages – from 55% in Estonia and 55.3% in Lithuania to 57.4% in Latvia while the EU average is 57.3%. Among women the difference between the EU and Baltic states is bigger – in the EU the average share of overweight and obesity among women is 43.6%, in Estonia it is 49.9%, in Lithuania 51.5% and in Latvia 53.3%. People living in the Baltic countries have higher prevalence of obesity than in EU on average, with the only exception of Lithuanian men. The share of obese people in the Baltics ranges between 13–23%, while in the EU it is about 15%.

**One-fifth of population aged 15+ in Estonia and about a quarter in Latvia and Lithuania reported to be alcohol abstainers.**

In the Baltic countries, the amount of people consuming alcohol at least once a week or more frequently is the highest in Estonia – 33% for men and 10% for women. Over 23% of Latvian and Lithuanian men and 8% of Latvian and 5% of Lithuanian women consume alcohol at least weekly. Consuming alcohol weekly is far more frequent in the EU on average (38.8%), than in the Baltic countries, but this is probably due to the cultural differences and does not reveal the quantities of consumed alcohol in terms of pure alcohol.

The share of alcohol abstainers and those who did not consume alcohol in the past 12 months is lowest for Estonia. One-fifth of survey respondents in Estonia and about a quarter in Latvia and Lithuania reported to be alcohol abstainers. The average share of alcohol abstainers among men in Baltics is similar to the EU average – about 16%. Among women, it is lower than the EU average – 28% and 31% respectively.

One-third of men in the Baltic countries declare to be daily smokers, while the average for EU is 23%. Among Estonian and Latvian women, the share of every-day smokers is at the same level as in the EU – about 15%, but only 9% of women in Lithuania smoke daily. Likewise, there are more non-smoking women in Lithuania than in the EU on average – 88% versus 80.5%, while the share of Estonian and Latvian non-smoking women is comparable with the EU. Around 60% of men in the Baltics are non-smokers, which is 10% less than the EU average.

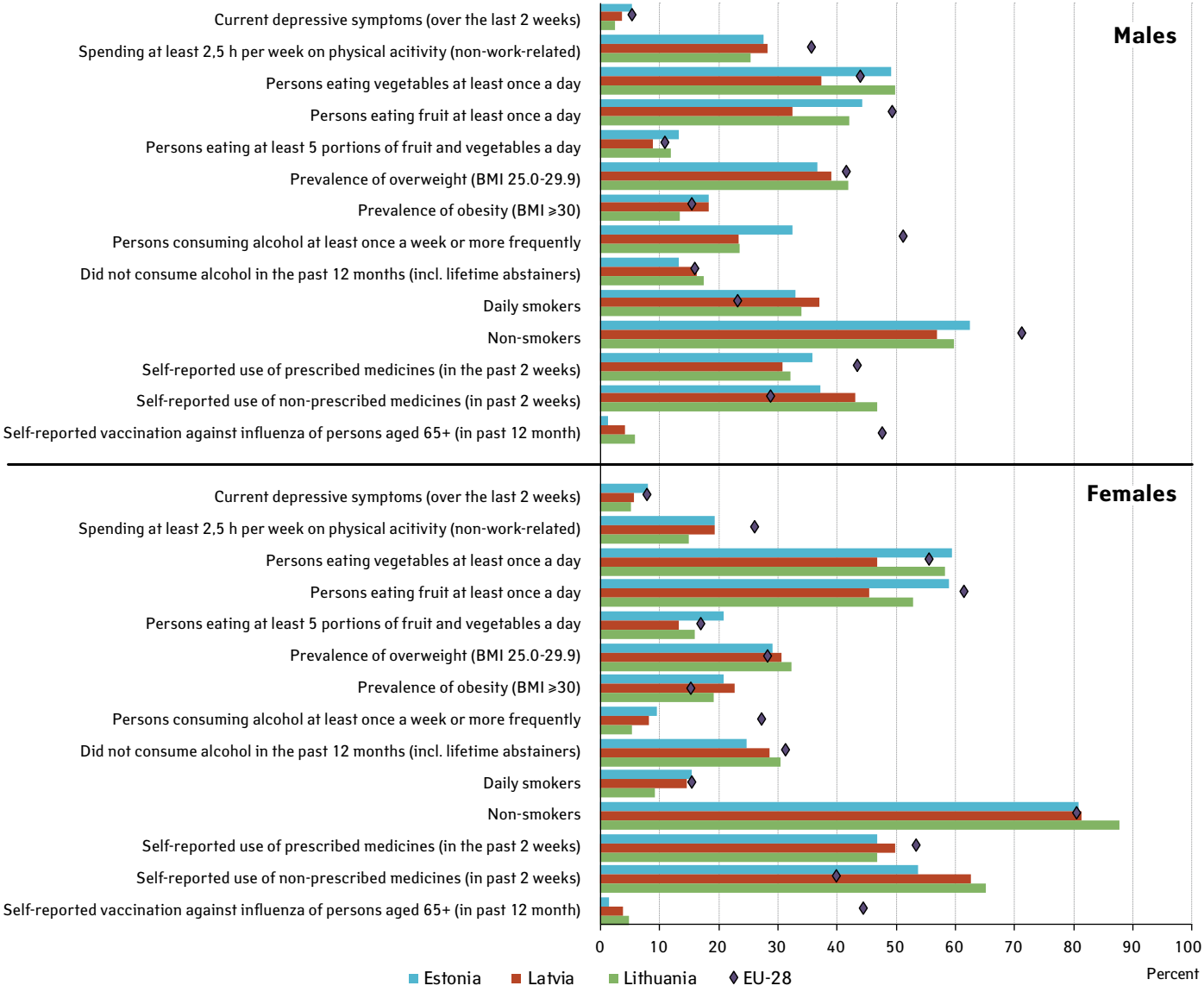
**There are 11% more daily smokers among men in the Baltics than in the EU on average. The share of daily smokers among women in the Baltics is by 2% less than in EU on average.**

About a third of men and a half of women in all Baltic countries report using prescribed medicines. The use of non-prescribed medicines is more diverse. In Lithuania and Latvia as much as two-thirds of women and around 45% of men describe using non-prescribed medicines in past two weeks. In Estonia – a half of women and 37% of men do the same. The interesting fact is that the self-reported use of prescribed medicines in the Baltics is much lower than in the EU on average, and the use of non-prescribed medicines is much higher.

**Self-reported use of prescribed medicines in the Baltic countries is 8% lower and the use of non-prescribed medicines is 18% higher than the EU average.**

The vaccination against influenza in the Baltic countries is very low. Self-reported vaccination of people over 65 is the highest in Lithuania – 5.2%, followed by Latvia with 3.9% and Estonia with only 1.5% of population. In the EU, the share of vaccinated elderly people reaches 46%. In Lithuania, the influenza vaccination for elderly is fully reimbursed. In Latvia, there is a 50% co-payment for vaccine and vaccination is fully paid by person in Estonia. The low rates of vaccination may reflect the lack of belief in the usefulness of vaccination.

## Health behaviour, 2014




Notes: Proportion (%) from all health interview survey respondents; age group 15+; BMI – body mass index
Source: Eurostat, EHIS 2014

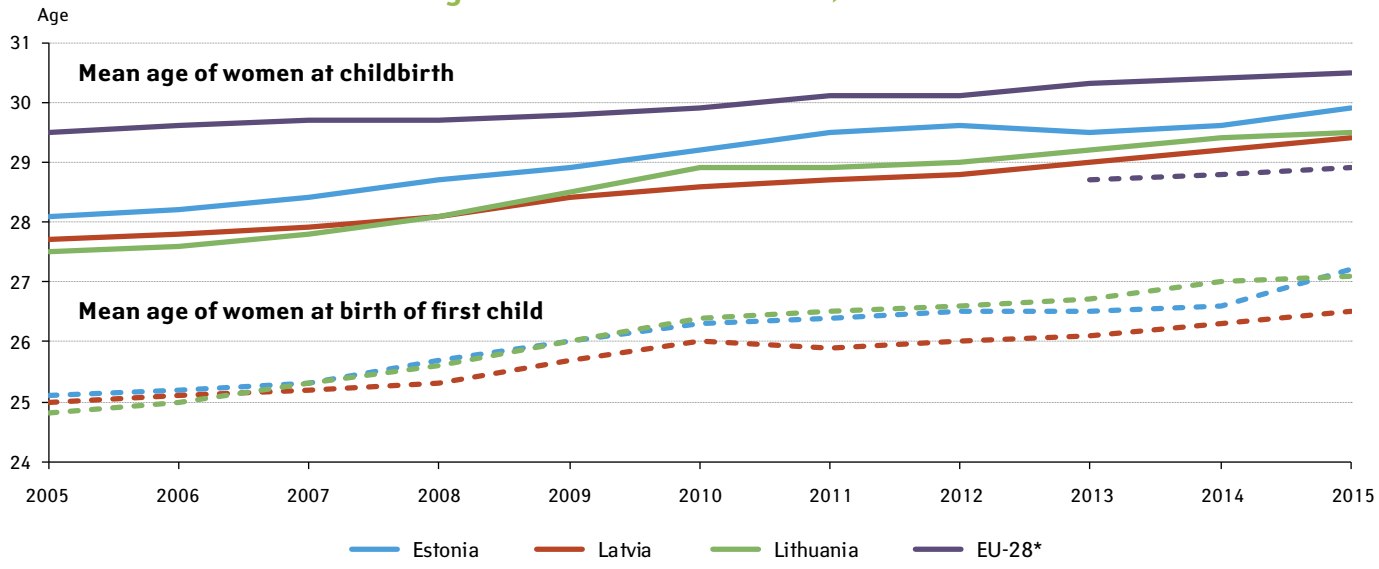
# Fertility

Having children is postponed increasingly to a later age. The birth rates have been declining among younger women aged 15–24 years and increasing in the older age groups from 25 years of age, when comparing 2005 and 2015.

The mean age of women at birth of first child has risen very similarly in all three Baltic countries throughout the whole period. If in 2005 the average age of women giving birth to the first child was 25 years, then for the year 2015 it has risen to 27 years. The EU average in 2015 was 28.9 years, which means that mothers in the Baltics on average are about two years younger when giving birth to their first child. In 2015, the mean age of women at childbirth in the EU was 30.5, which has increased by one year compared to 2005. In Baltic countries the mean age of women, giving birth was 29.6 and it has increased by 1.8 years in ten years comparison.

**In 2015, the mean age of women at birth of their first child was 27 years in the Baltic countries. The EU average was 29 years.**

## Mean age of women at childbirth, 2005–2015



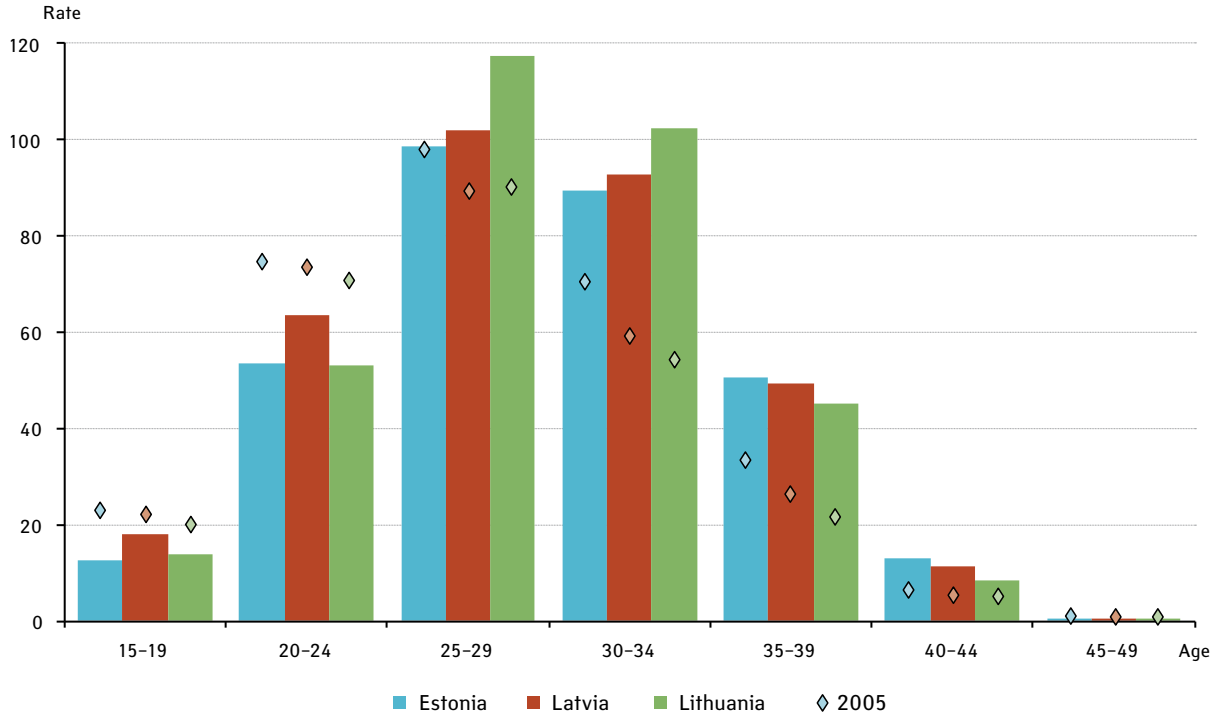

*Mean age of women at birth of first child in EU-28 is available only for 2013–2015

## Total fertility rate, 2005 and 2015

| | 2005 | | 2015 |
|---|---|---|---|
| Estonia | 1.5 | ↑ | 1.6 |
| Latvia | 1.4 | ↑ | 1.7 |
| Lithuania | 1.3 | ↑ | 1.7 |

The total fertility rate in 2015 in Lithuania (1.7) and in Latvia (1.7) exceeded the European average, the Estonian rate remained at the same level with the EU average fertility rate – 1.6. Comparing to 2005, the birth rates for women aged 35 and over have almost doubled by 2015 in the Baltic countries. At the same time the birth rates for very young women aged 15–19 have decreased about one-third and for women aged 20–24 by one-fifth on average.

## Age-specific fertility rate by age of mother per 1000 females, 2005 and 2015



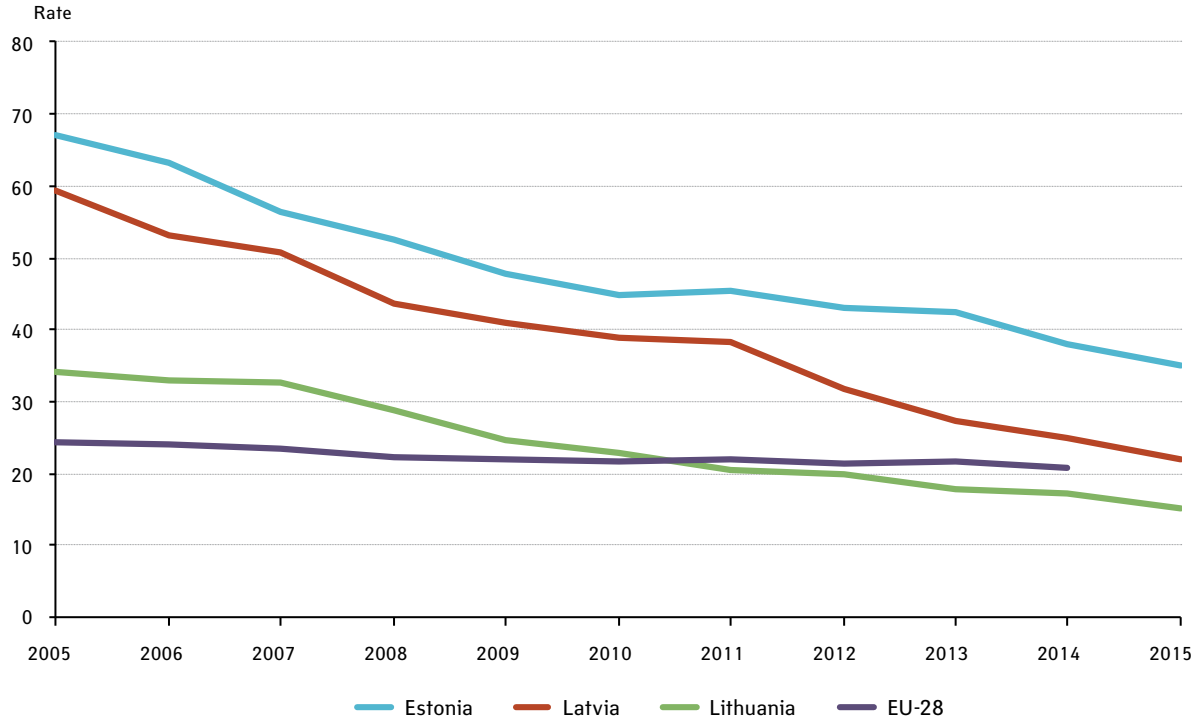
# Abortions

According to the official statistics, legally induced (incl. therapeutic) abortions in the period 2005–2015 have decreased the most in Latvia – 63%, reaching 22.1 abortions per 100 live births in 2015. In Lithuania the decline has been 56% and in Estonia 48%.

The abortions ratio in 2015 was 15.0 abortions per 100 live births in Lithuania and 35.2 in Estonia. The EU average ratio was 20.8 abortions per 100 live births, which means that only Lithuanian indicator was below the EU average. The number of abortions per 1000 women of childbearing age (15–49) was 16.8 in Estonia, 10.9 in Latvia and 7.2 in Lithuania.

**In the period 2005–2015, legally induced abortions decreased by 63% in Latvia, 56% in Lithuania and 48% in Estonia.**

## Induced abortions per 100 live births, 2005–2015

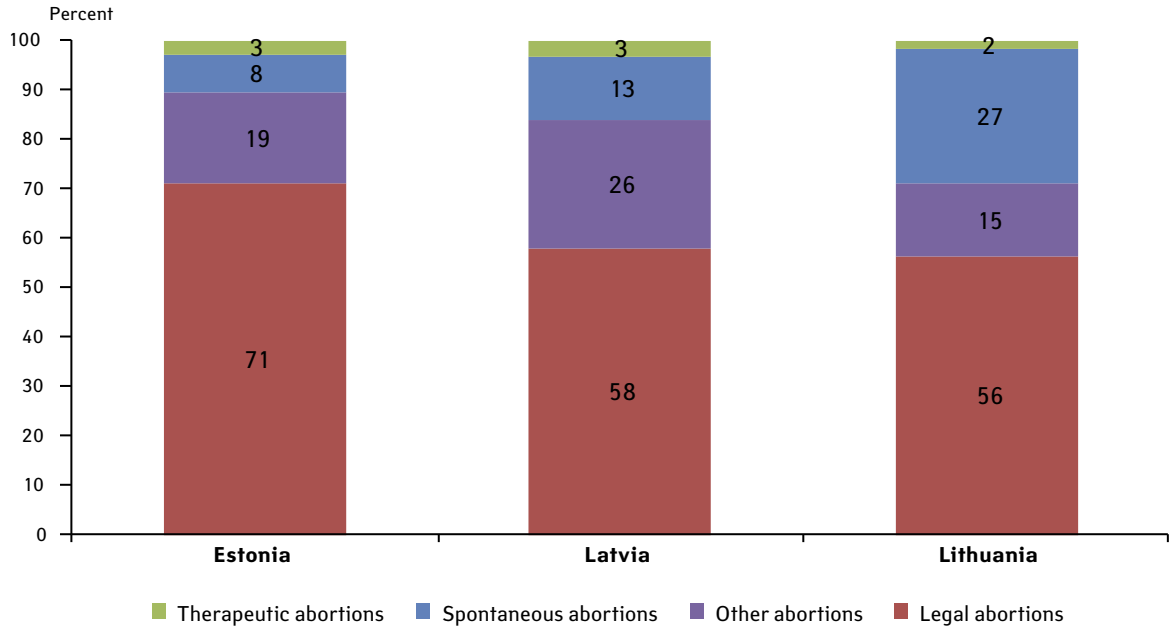


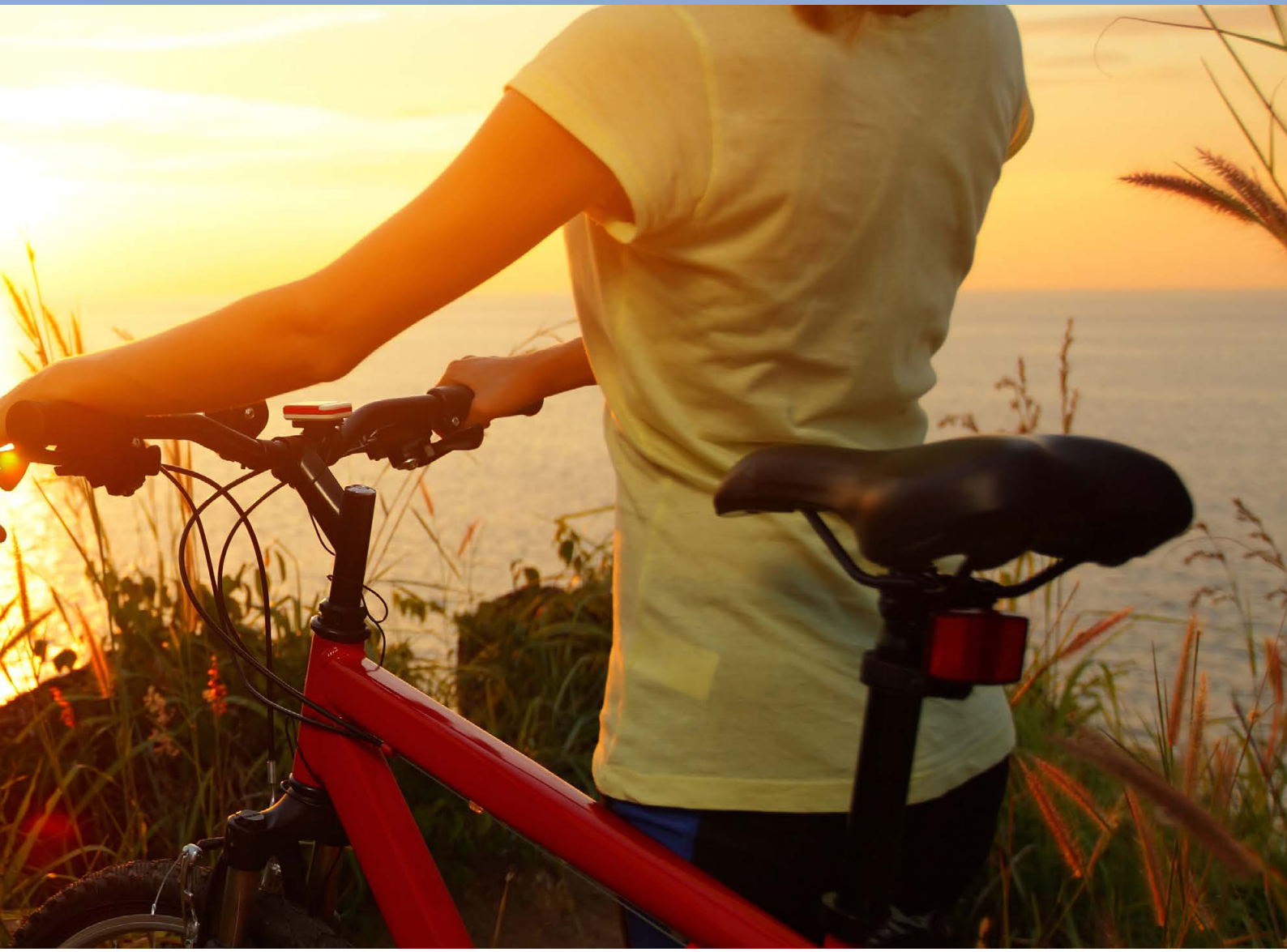
## Abortions, 2015

| | Estonia | Latvia | Lithuania |
|---|---|---|---|
| **All abortions** | | | |
| Per 1000 women aged 15–49 y. | 22.8 | 17.9 | 12.3 |
| Per 100 live births | 47.7 | 36.2 | 25.9 |
| **Induced abortions** | | | |
| Per 1000 women aged 15–49 y. | 16.8 | 10.9 | 7.2 |
| Per 100 live births | 35.2 | 22.1 | 15.0 |

In 2015, legally induced abortions formed 74% of all abortions in Estonia, 61% in Latvia and 58% in Lithuania. The share of spontaneous abortions was 8% in Estonia, 13% in Latvia and 27% in Lithuania. The biggest difference by types of abortions occurs within the induced abortions where Estonian rate was over two times higher than in Lithuania, and Latvian rate was about 47% higher than in Lithuania. The reason for such big differences in the number of abortions most probably lies in the different registration systems. In Estonia, the Estonian Abortion Registry collects data on abortions from all health care service providers. In Latvia and Lithuania there are no such registries and the data on abortions performed in private clinics are likely under-reported.

## Abortions by type, 2015





# MORTALITY AND MORBIDITY

# Infant mortality

## Perinatal, neonatal and maternal mortality, 2015

| | Estonia | Latvia | Lithuania |
|---|---|---|---|
| Stillbirth rate per 1000 births | 3.9 | 4.8 | 4.0 |
| Early neonatal mortality per 1000 live births | 1.2 | 2.1 | 1.7 |
| Perinatal mortality per 1000 births | 5.0 | 6.9 | 5.7 |
| Neonatal mortality per 1000 live births | 1.5 | 2.5 | 2.4 |
| Standard perinatal mortality* | 3.4 | 4.4 | 3.7 |
| Standard stillbirth rate* | 2.8 | 3.2 | 2.8 |
| Maternal mortality per 10 000 live births | 0.0 | 5.5 | 9.5 |

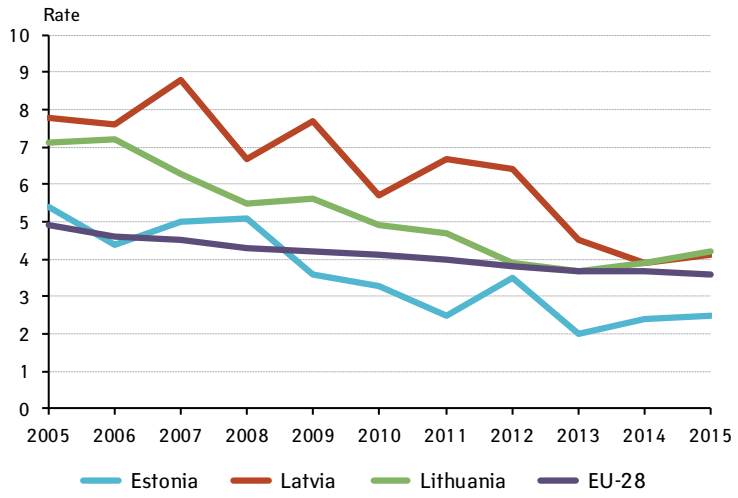
*Birth weight 1000 grams and more

**In 2015, the infant mortality rate in Estonia was 2.5, in Latvia 4.1 and in Lithuania 4.2 deaths per 1000 live births.**

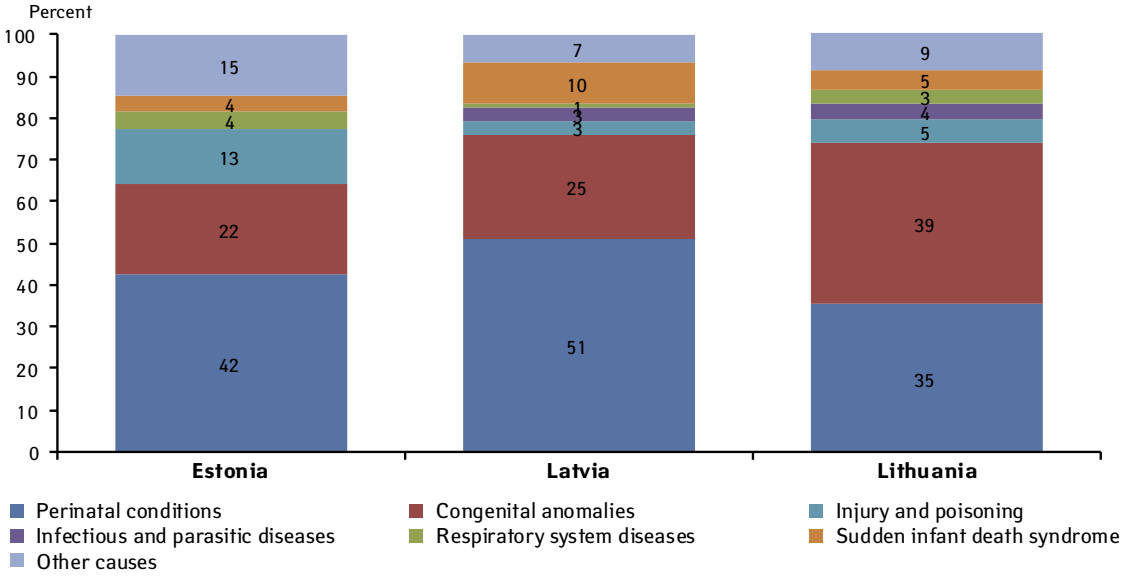
The infant mortality rates have decreased by half in all three Baltic countries during 2005–2015. In Estonia, the rate has been lower than the European average since 2009. The mortality rate of children less than one year of age in Lithuania reached the European average once in 2013, but has remained above the average in the following years. In 2015, the rates in Latvia and Lithuania were only slightly above the European average, which was 3.6 deaths per 1000 live births.

The share of deaths in neonatal period (the first 28 days of life) in total infant mortality was 60% in Estonia, 61% in Latvia and 57% in Lithuania. The majority of neonatal mortality falls into early neonatal period (0–6 days of life). Its proportion in total neonatal mortality in Estonia was 79%, 84% in Latvia and 71% in Lithuania. Since the year 2005 a great progress has been achieved, the neonatal deaths rates have decreased by half and the early neonatal mortality has decreased by 40% on average in the Baltic countries.

## Infant mortality per 1000 live births, 2005–2015



## Infant mortality by cause three-year (2013–2015) average




The perinatal conditions and congenital anomalies accounted for on average 64% of infant deaths in Estonia, 76% in Latvia and 74% in Lithuania in the period of 2013–2015. While the perinatal conditions were the major cause for infant deaths in Estonia and Latvia, in Lithuania the share of congenital anomalies (39%) exceeded the perinatal conditions (35%). It is notable that over one-tenth of infant deaths in Estonia occurred due to injuries or poisoning. In Latvia, sudden infant death syndrome accounted for on average one-tenth of all infant deaths.

**The perinatal conditions and congenital anomalies are the two major causes of infant mortality in the Baltic countries.**

# Mortality

**The diseases of circulatory system and malignant neoplasms are the main causes of death in the Baltics and in the EU.**

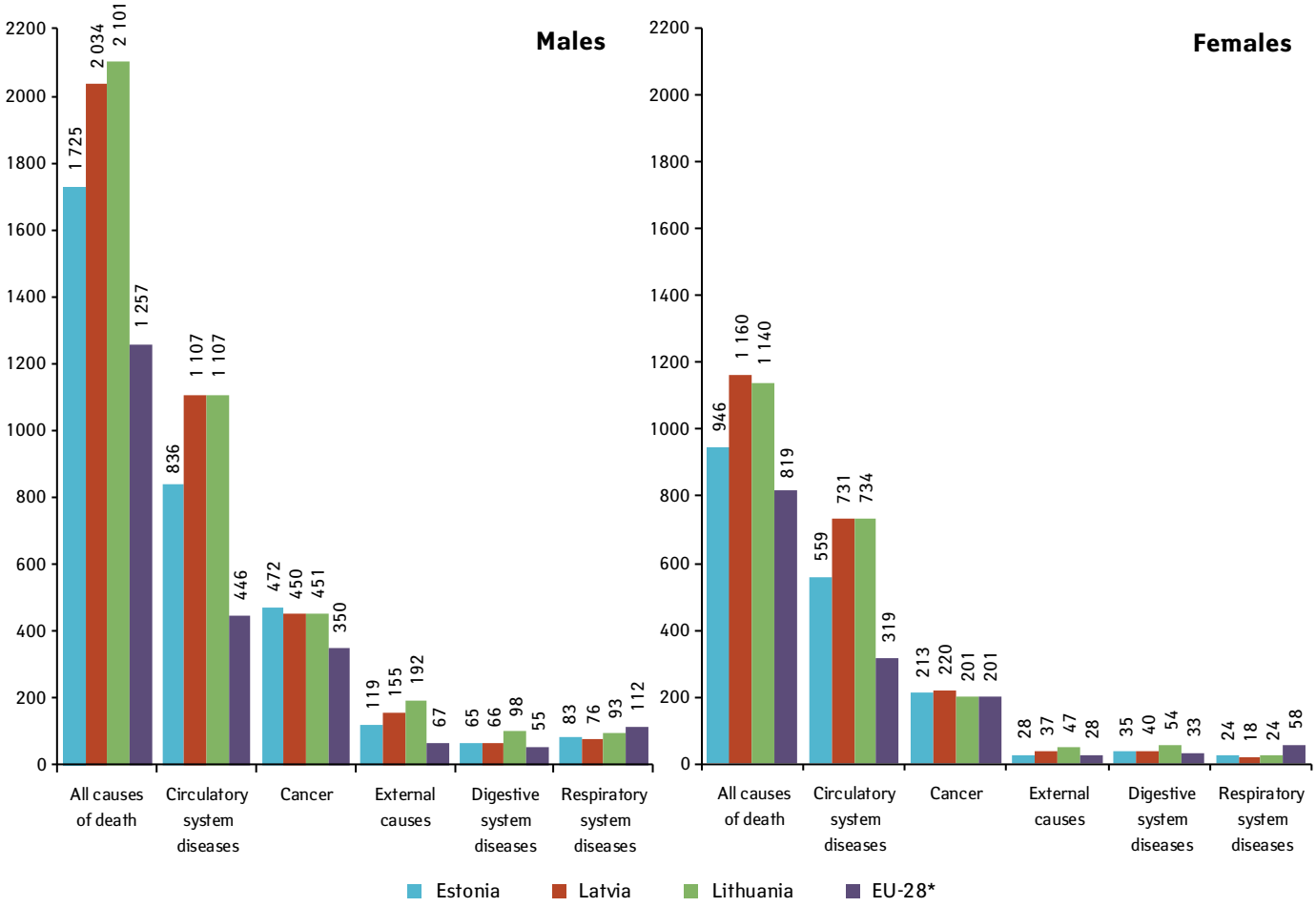
Overall age-standardised death rates in the Baltics in 2015 were remarkably higher than the European average one year before (1256.5 deaths per 100 000 men and 818.8 deaths per 100 000 women). In Estonia, the rates for men were about 40% higher and in Latvia and Lithuania about 60% higher than in the EU. The death rates for women were 15% higher in Estonia and 40% higher in Latvia and Lithuania than in the EU. The two main causes of death are the same in the Baltics as in the EU – diseases of the circulatory system and cancer. Injuries are the third cause of death in the Baltic countries. However, in the EU, respiratory system diseases are the third leading cause of death.

The main causes of death in the Baltics are the same for men and women but the death rates vary significantly. Mortality in general is almost two times higher among men. The largest difference is in deaths caused by injuries and respiratory system diseases – about four times more men than women die due to these causes. In EU on average, death rates due to injuries and respiratory system diseases are about two times higher for men comparing to women.

**In 2015, the death rates for women were by one-third and for men about half times higher in the Baltic countries than in the EU a year before.**

The overall mortality was about one-fifth higher in Latvia and Lithuania compared to Estonia in 2015. The difference was largest in deaths due to injuries – almost 30% more deaths occurred in Latvia and over 60% more in Lithuania than in Estonia. But mortality from malignant neoplasms was higher in Estonia, except compared to Latvian women. About two and a half times more women and 40% more men died due to respiratory system diseases in EU on average than in the Baltic countries.

## Age-standardised death rates per 100 000 European standard population, 2015

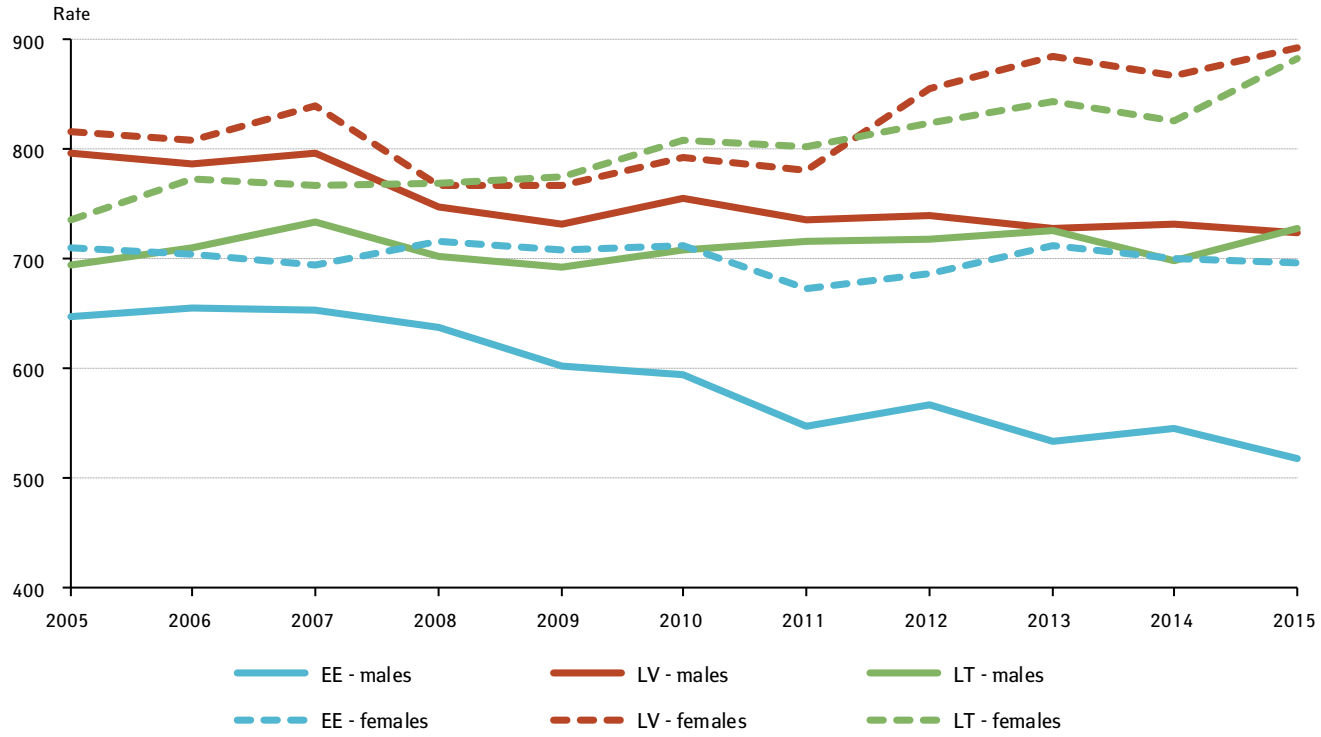



Notes: Age-standardised death rates calculated using the 2013 European Standard Population
* EU-28 provisional data for 2014

**The diseases of the circulatory system accounted for about half of men's and over 60% of women's deaths in the Baltic countries in 2015.**

**Circulatory system diseases** are the leading cause of death in the Baltics as in most European countries. Deaths due to these diseases account for about half of all the deaths among men and more than 60% among women in the Baltic countries. In EU, the share of deaths due to circulatory system diseases is slightly below 40%. During 2005–2015, the death rate from circulatory system diseases has significantly decreased for Estonian men, and a decrease can be seen also for Latvian men. For Lithuanian and Latvian women, on the contrary, the death rates have increased. No significant changes have occurred for Lithuanian men and for Estonian women.

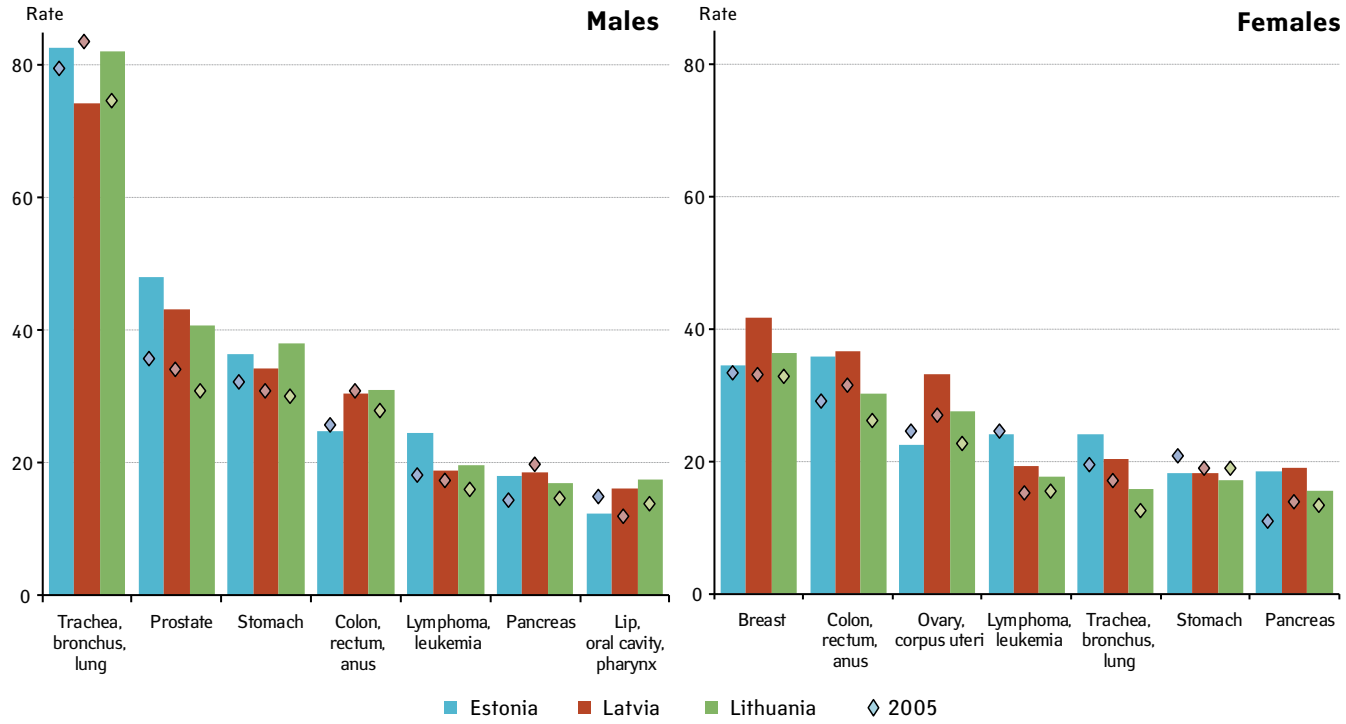
## Deaths from circulatory system diseases per 100 000 population, 2005–2015



**The malignant neoplasms** were the cause for about a quarter of all men's and one-fifth of women's deaths in the Baltics in 2015. Age-standardised death rates for men are twice as high than for women. The main cause of cancer mortality among men is lung cancer that accounts for about quarter of all cancer deaths. Among women, breast and colorectal cancer are the most common causes, together accounting for nearly 30% of all cancer deaths for females.

**Malignant neoplasms cause about one-fifth to a quarter of deaths in the Baltics.**

## Main causes of cancer deaths per 100 000 population, 2005 and 2015

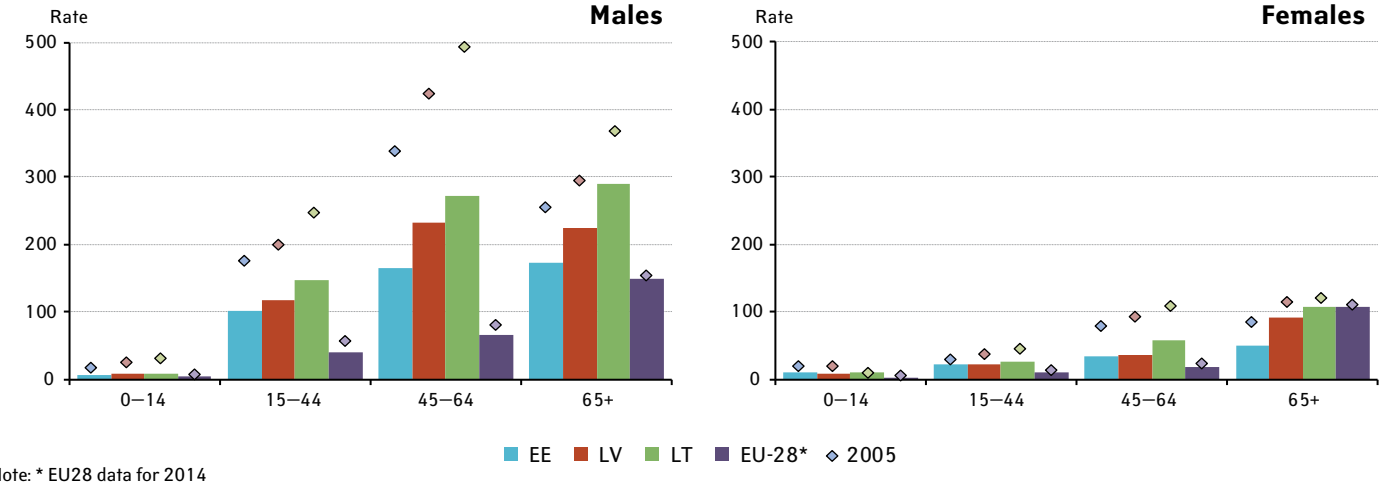


**Injuries, poisoning and other external causes are the third leading cause of death in the Baltic countries, in the EU it is the fourth cause.**

**Injuries, poisoning and other external causes** accounted for about 11% of men's and 3% of women's deaths in the Baltics in 2015. Death rates vary largely not only between genders, but also between age groups. Most injury-related deaths occur among men aged over 45. In EU on average, injuries are rather a cause of death among elderly than for those in working age – deaths from injuries are twice as common among men aged 65 and over than among men aged 45–64. In the Baltic countries, the death rates for men in these two age groups have become proportionally equal at the present time. However, back in 2005, significantly more men aged 45–64 died because of injuries compared to older men.

Similarly to other European countries, there is 70–80% less deaths from injuries and poisonings among women than among men of the same age group. Injury-related deaths, although decreased in the Baltics over the ten-year-period, have remained far more common compared to EU on average, especially among working age men.

## Deaths from injuries, poisoning and other external causes per 100 000 population by age group, 2015

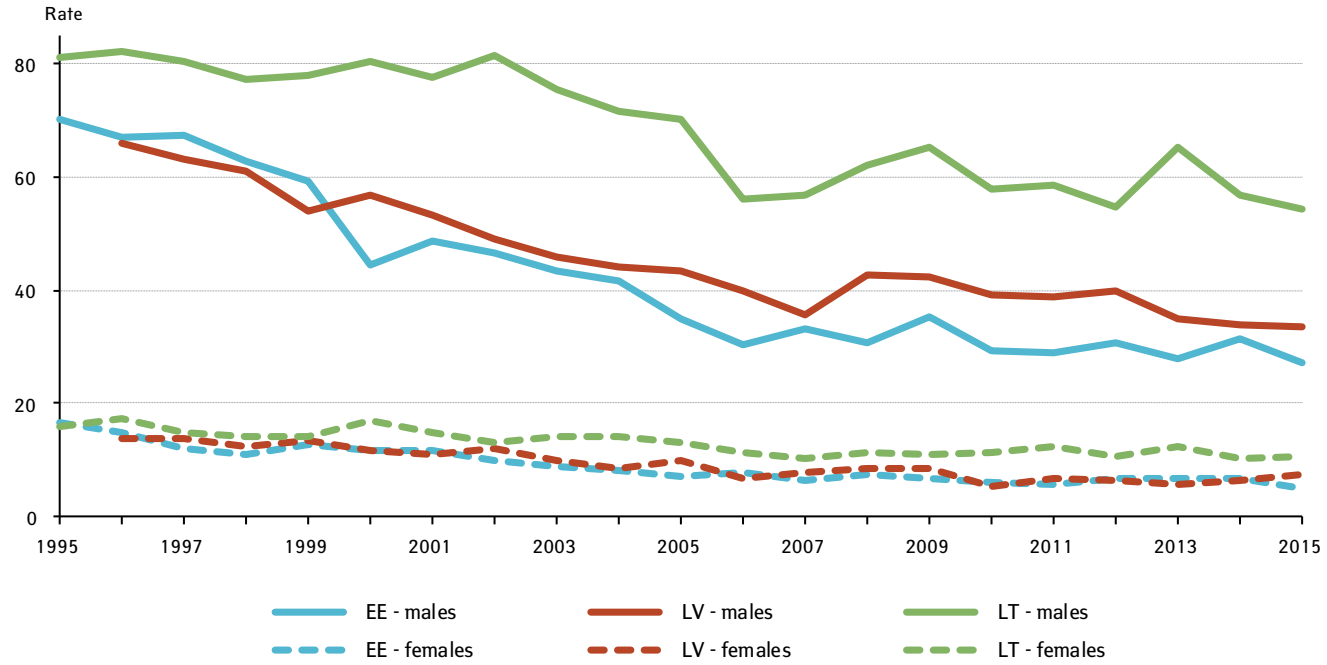



Note: * EU28 data for 2014

The suicide rates in all three Baltic countries started to rise during the restoration of independence in the beginning of 1990s and peaked in the middle of the decade. After that, a slow decline started which had some relapses, especially during the economic crisis between 2007 and 2009, when there were more suicides. Altogether, suicide rates have decreased since 1996 by nearly half in Latvia and over 60% in Estonia, for both men and women. The decline has been slower in Lithuania, where the rate has dropped about 30% for men and 40% for women, remaining still significantly higher than in the other two Baltic countries. Comparing to the EU average (18 suicides per 100 000 men in 2014), the rates in the Baltics were still 1.5 to 3 times higher.

**The suicide rates for men have been on average five times higher than for women in the Baltic countries.**

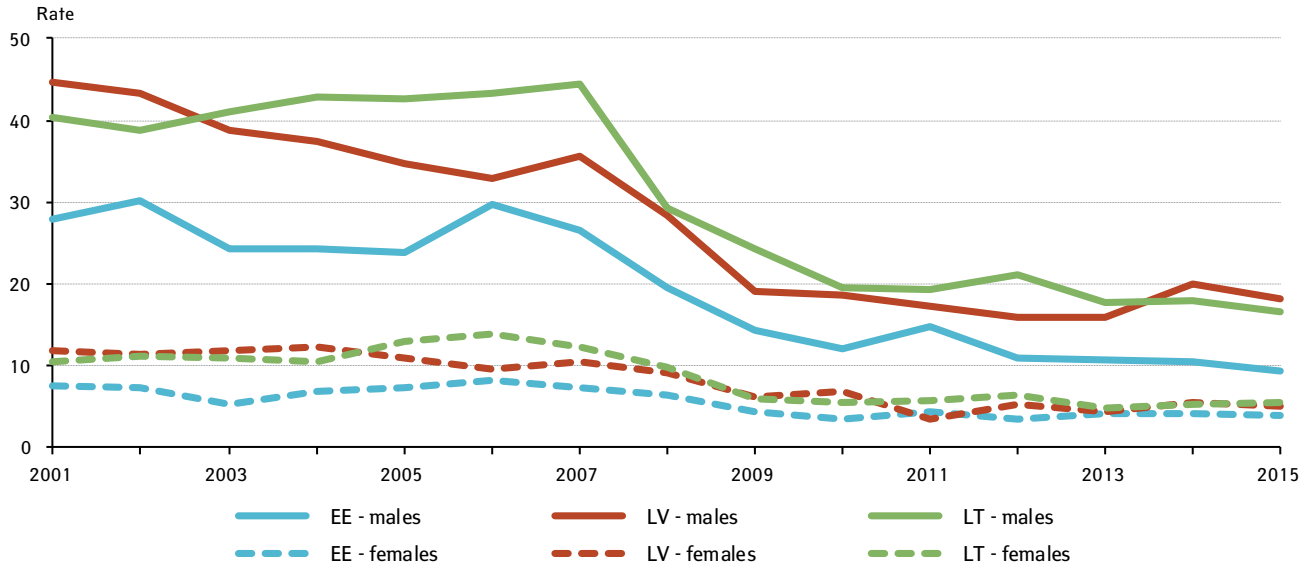
## Suicides per 100 000 population, 1995–2015



**The share of deaths from transport accidents in total mortality from external causes has decreased from 15% to 10% in the period of 2001–2015 in the Baltics.**

The number of human casualties, caused by transport accidents has decreased by nearly 60% for all Baltic countries in the period of 2001–2015. The decline was especially significant in 2008–2010 and particularly among men. The reason is believed to be in the economic crisis, but also in the successful policy on road safety in the EU and in the national level. The third European road safety action programme, which ran between 2003 and 2010, set the goal of halving road deaths by 2010 compared to 2001. In 2010, the new target of reducing road deaths again by 50% by 2020 compared to 2010 levels was marked out. The further strategies for improving the road traffic safety have had the continuous influence on reducing the deaths from transport accidents both in Baltic countries and in the EU. Moreover, although in 2015 only nine European countries registered a drop in road deaths, the three Baltic countries were among the top five (ETSC, 2016).

## Deaths from transport accidents per 100 000 population, 2001–2015



# Cancer incidence

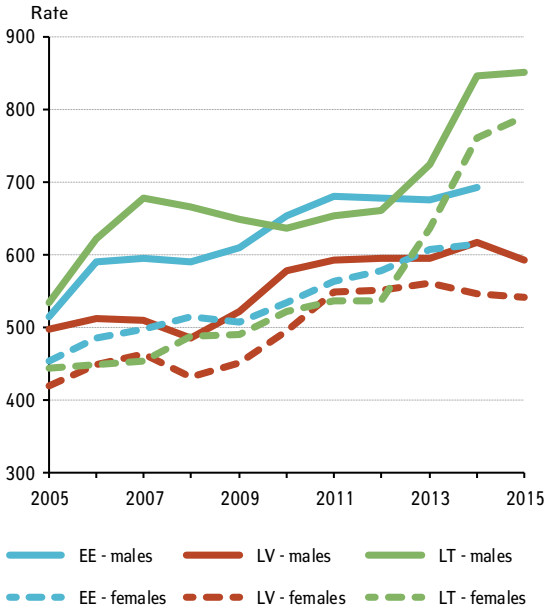
In recent years, about one-third more new cancer cases have been registered in the Baltics than in 2005. The average yearly increase of new cases of cancer in 2005–2015 ranged from 2.5% in Latvia and 3% in Lithuania to 3.5% in Estonia, when not considering the preliminary data for 2013–2015 for Lithuania.

The increase in the rates of new cases of malignant neoplasms is similar for men and women but the incidence rates have always been higher for men. In Estonia and Latvia, there are about 10% more men's new cancer cases. In Lithuania, for some former years, the difference has been even over 20% more new men's cases compared to women. Latvia has the lowest rate of new cancer cases in the Baltics – mainly because of men's lower prostate cancer rates and women's lower skin cancer rates.

Prostate cancer is the most common cancer type among men that accounts for one-fifth to one-third of all new cancer cases, depending on the country. Skin and breast cancer are the most common among women, both types accounting for about one-fifth of all new cancer cases. Comparing the latest data available to 2005, there has been an increase in almost all cancer types, but the rates of prostate and skin cancer for men, and skin, breast and also urinary tract cancer for women have increased the most. The lower rate of prostate cancer for Latvian men could be the result of under-reporting from private outpatient clinics in Latvia. In Lithuania, the national prostate specific antigen (PSA) test based early detection programme has been running since 2006 and the big increase in the prostate cancer incidence rate is believed to be the result of increased detection rates also (Smailyte, Aleknaviciene, 2012). The rise in the reported incidence of prostate cancer in Estonia during the 2000s has been largely due to the greater use of PSA diagnostic tests, which enable also the detection of the latent cancer cases (Zimmermann et al, 2017).

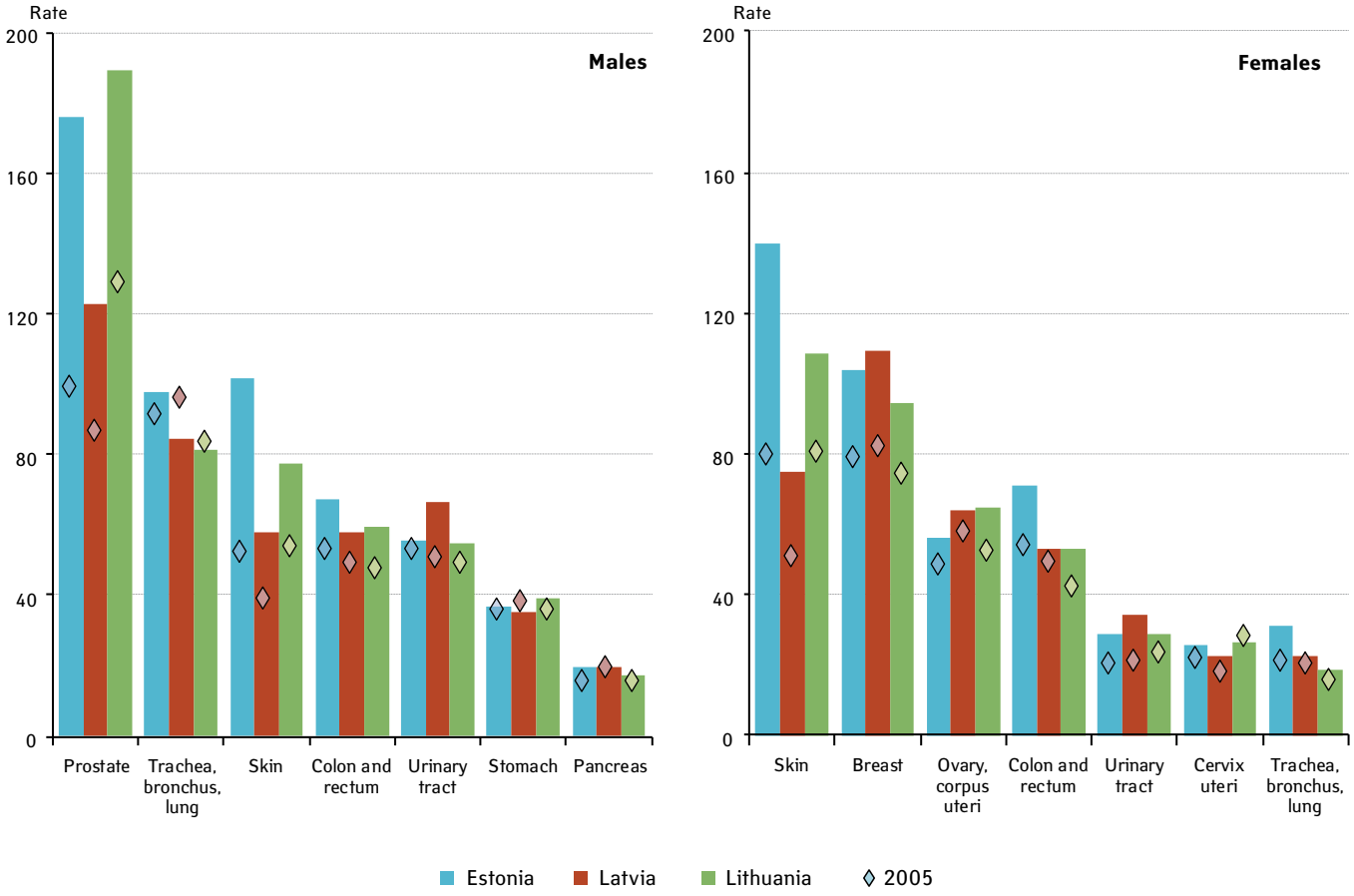
**In recent years, about one-third more new cancer cases have been registered in the Baltics than 10 years ago.**

## New cases of cancer per 100 000 population, 2005–2015 (or latest year)




Note: LT preliminary data for 2013–2015

## New cases of cancer by main sites per 100 000 population, 2005 and 2015 (or latest year)



# Incidence of selected infectious diseases

Infectious diseases, especially the high rates of HIV, tuberculosis and hepatitis continue to be the important public health challenges in all three Baltic countries. Tuberculosis and HIV are addressed in more detail in the following chapters. In current section, the infections under international surveillance with higher incidence rates in the Baltic region or that are vaccine-preventable are included. For a better overview, the way of transmission of the diseases is used for their categorisation.

Among all intestinal infections, the rotaviral enteritis, the most common cause of diarrhea for infants and children, had the highest notification rates in Baltic countries in 2015. The vaccination of infants against rotavirus was implemented in the national immunisation programme in Estonia since 2014 and in Latvia since 2015. Norwalk virus was the second most common intestinal infection in Estonia and Latvia. In Lithuania, the incidence rate for salmonellosis was higher than for the Norwalk virus.

**Rotaviralis enteritis was the most common intestinal infection in the Baltic countries in 2015.**

Due to the differences in registration, the data on influenza, the most widespread droplet infection in the Baltic countries, are not included. Among the vaccine-preventable droplet infections, whooping cough is still causing problems in Europe and in the Baltics. After the bigger outbreak of whooping cough in 2010 in Estonia and somewhat smaller outbreaks in Latvia and Lithuania in 2012, the incidence of pertussis has been decreasing. However, in 2015 the increased incidence rates could be observed again in Latvia and Estonia, 10.6 and 5.9 cases per 100 000 population respectively. In Estonia over 50% and in Latvia about one-fifth of the infected were people aged over 30 years. According to European Centre for Disease Prevention and Control (ECDC), outbreaks in areas of high vaccination coverage highlight that vaccination strategies may need to be revised and vaccination to adolescent and adults as well to healthcare workers and pregnant women should be considered (ECDC, 2016).

**In 2015, there was an increase in the whooping cough incidence again in Latvia and in Estonia, comparing to the year before.**

**All three Baltic countries represent the endemic area of increased risk of tick-borne encephalitis and Lyme disease (borreliosis).**

Lyme disease and tick-borne encephalitis are the most prevalent transmissive infections in the Baltics. All three countries are among those 12 countries in EU with an increased risk of tick-borne encephalitis (TBE) (ECDC, 2016). The rate of new TBE cases in 2015 was the highest in Lithuania – 11.6 cases per 100 000 population, followed by Estonia and Latvia, 8.8 and 8.5 cases per 100 000 population respectively.

## Selected infectious diseases, new cases per 100 000 population, 2015

| Disease | ICD-10 code | Rate | | |
|---|---|---|---|---|
| | | Estonia | Latvia | Lithuania |
| **Intestinal infections** | | | | |
| Salmonellosis | A02 | 9.0 | 21.7 | 37.3 |
| Bacillary dysentery | A03 | 0.9 | 0.6 | 0.8 |
| Rotavirus[V] | A08.0 | 73.3 | 151.1 | 136.0 |
| Norwalk virus | A08.1 | 30.1 | 64.2 | 27.8 |
| **Droplet infections** | | | | |
| Tuberculosis[V] | A15–A19 | 12.9 | 31.4 | 41.9 |
| Diphtheria[V] | A36 | 0.0 | 0.5 | 0.0 |
| Whooping cough[V] | A37 | 5.9 | 10.6 | 2.1 |
| Meningococcal infection | A39 | 0.3 | 0.6 | 2.6 |
| Haemophilus influenzae infection[V] | A41.3; G00.0; J14; A49.2 | 3.7 | 0.1 | 0.5 |
| Measles[V] | B05 | 0.3 | 0.0 | 1.7 |
| **Wound infections** | | | | |
| Tetanus[V] | A33–A35 | 0.0 | 0.0 | 0.1 |
| **Transmissive infections** | | | | |
| Lyme disease (borreliosis) | A69.2 | 106.7 | 25.0 | 77.5 |
| Tick-borne encephalitis[P] | A84 | 8.8 | 8.5 | 11.6 |

[V] Diseases that are in the national immunisation programme in all three countries. Only exception is rotavirus that is not in the national immunisation programme in Lithuania.
[P] In the national immunisation programme for the epidemic areas (age 0 – 18) in Latvia.

## Selected infectious diseases, new cases per 100 000 population, 2015 (continued)

| Disease | ICD-10 code | Rate | | |
|---|---|---|---|---|
| | | Estonia | Latvia | Lithuania |
| **Viral hepatitis. HIV/AIDS** | | | | |
| Viral hepatitis. total | B15–B19 | 21.2 | 104.7 | 47.6 |
| ..hepatitis A, acute | B15 | 0.5 | 0.3 | 0.2 |
| ..hepatitis B, acute[v] | B16.2; B16.9* | 0.5 | 3.8 | 1.1 |
| ..hepatitis C, acute | B17.1 | 0.8 | 3.5 | 0.8 |
| ..hepatitis C, chronic | B18.2 | 17.4 | 90.5 | 28.6 |
| AIDS | B20–B24 | 1.5 | 6.7 | 1.2 |
| HIV carrier | Z21 | 20.5 | 19.9 | 5.4 |
| **Sexually transmitted diseases** | | | | |
| Syphilis | A50–A53 | 1.9 | 7.0 | 9.8 |
| Gonorrhoea | A54 | 9.2 | 14.4 | 6.7 |
| Chlamydial infections | A55–A56 | 102.8 | 79.5 | 14.1 |

Notes: * EE: B16
[v] Diseases that are in the national immunisation programme in all three countries. Only exception is rotavirus that is not in the national immunisation programme in Lithuania.

In case of acute hepatitis B, Latvia and Lithuania were among the six countries in the EU with rates over 1.0 per 100 000 in 2015. The number of newly diagnosed hepatitis C cases reported from the Baltic countries remained at a high level. Still, there was considerable variation in the rates of cases between the countries. The incidence of acute hepatitis C cases in Latvia was four and a half times higher than in Estonia and Lithuania. In addition, the rate for the chronic hepatitis C in Latvia was three times higher than in Estonia and five times higher than in Lithuania, being also the highest rate in the EU. Hepatitis C continues to be a public health concern in Baltics and across Europe with a high burden of infection and high levels of associated morbidity and mortality.

Chlamydial infections had the highest prevalence in the group of sexually transmitted diseases in all three Baltic countries in 2015. However, the Latvian rate was by 30% and the Lithuanian rate even seven times smaller than in Estonia.

**The Baltic countries have the highest number of newly diagnosed hepatitis B and hepatitis C infections (both acute and chronic) in the EU.**

# Tuberculosis incidence and mortality

Since the beginning of 1990s, in the environment of huge political and economical changes following the collapse of Soviet Union, the tuberculosis morbidity increased significantly in all three Baltic countries. The dried out financing and deterioration in health care systems exacerbated the problems with tuberculosis control and treatment.

However, since the beginning of the 2000s, the tuberculosis incidence has decreased in all three Baltic countries. Over the years 2005–2015, the number of new cases in Estonia has decreased about 60% and in Latvia 40%. In Lithuania, the decline has been slower – by one-third during the same period. The incidence rate in Lithuania has remained three times higher than in Estonia, and about one-third higher than in Latvia. Despite the declining morbidity, the number of new cases per population has remained high in the Baltic countries – 42, 31 and 13 new cases per 100 000 in Lithuania, Latvia and Estonia respectively. Therefore, WHO continuously classifies all three among 18 high-priority countries in the European region (ECDC, 2017).

**Comparing to 2005, the number of new cases of tuberculosis decreased by about half in Estonia and Latvia, and by one-third in Lithuania by 2015.**

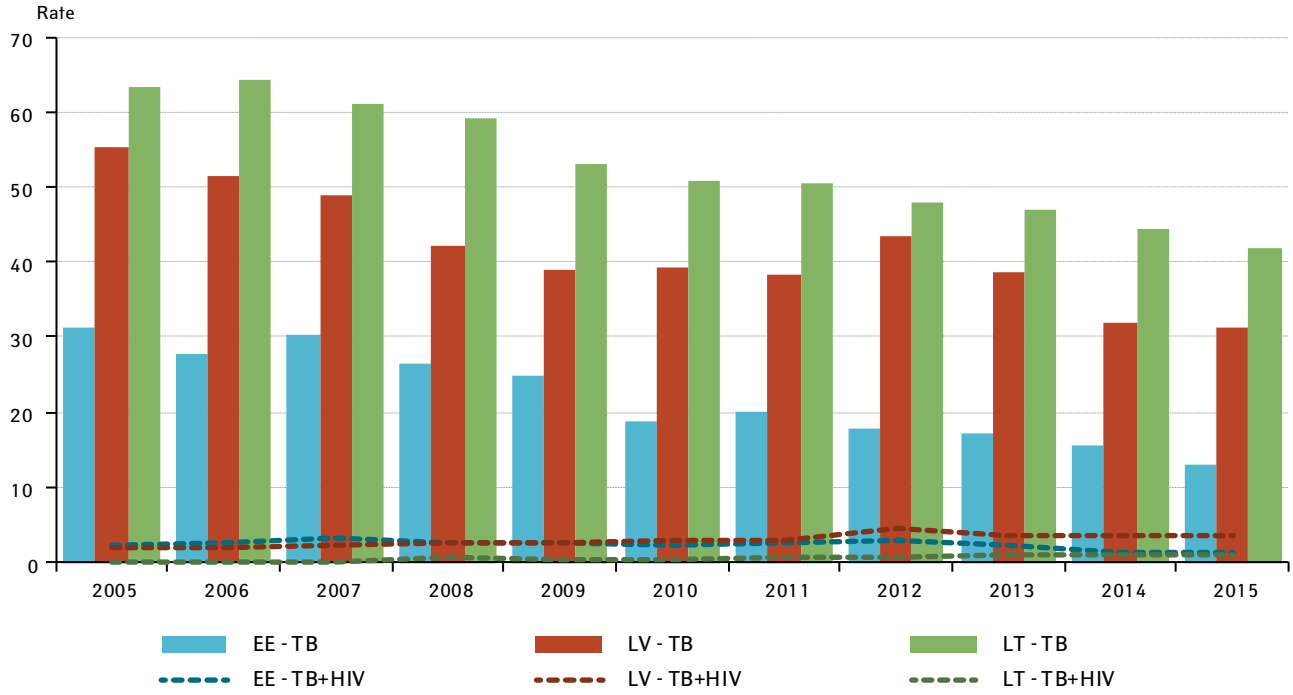
The high rates of multidrug resistant (MDR) tuberculosis have remained a problem in the Baltic region. The proportion of MDR cases from all new bacteriologically-confirmed pulmonary TB cases in 2015 varied from 7.9% in Latvia and 11.6% in Lithuania to 13.5% in Estonia, while the EU average was 2.2%. Although the absolute number of cases is not big, the proportion of MDR tuberculosis cases among previously treated pulmonary cases was even higher in Baltics: almost half of the cases in Estonia and Latvia and about one-fifth in Lithuania (ECDC, 2017).

Tuberculosis affects more men than women – there were nearly three times more men among the new TB cases in the Baltics. At the same time, the ratio of co-infection with HIV is quite similar among both genders. In 2015, about 9% of newly diagnosed people

with tuberculosis had also HIV in Estonia, nearly 11% in Latvia and about 3% in Lithuania. In Estonia, the HIV testing rate among people with diagnosed tuberculosis was 96% in 2015, while in Lithuania it was 72% and in Latvia 62% (ECDC, 2017). However, the lower co-morbidity rates in Lithuania cannot be explained by testing rates alone because the overall rate of HIV infections is also significantly lower than in the other two countries.

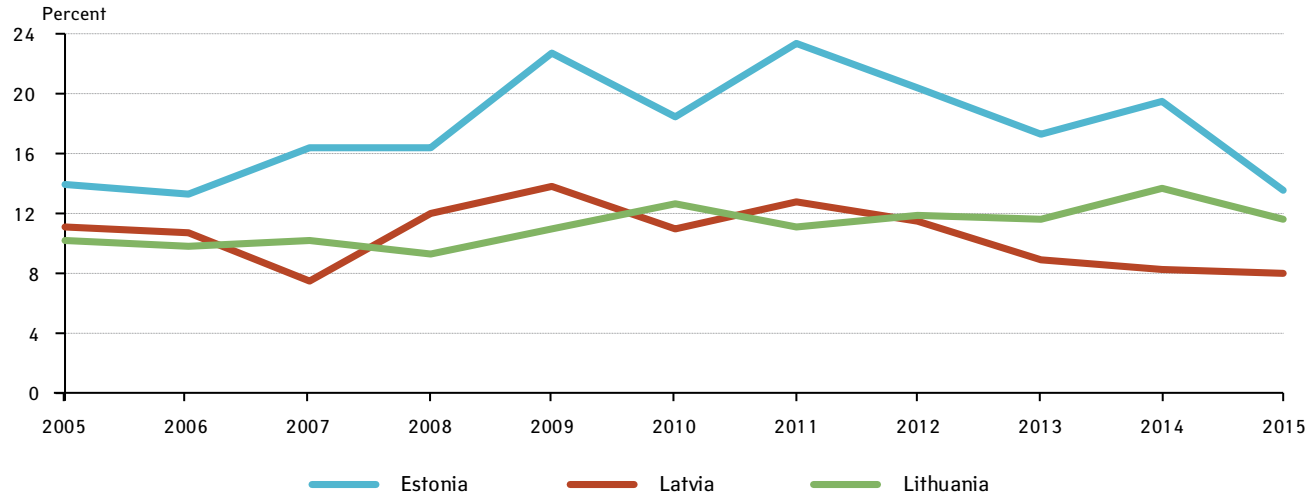
Mortality due to tuberculosis is the highest in Lithuania. In 2015, the mortality rate was 7 deaths per 100 000 population, but the death rate was declining, as in Estonia.

## New cases of tuberculosis per 100 000 population, 2005–2015



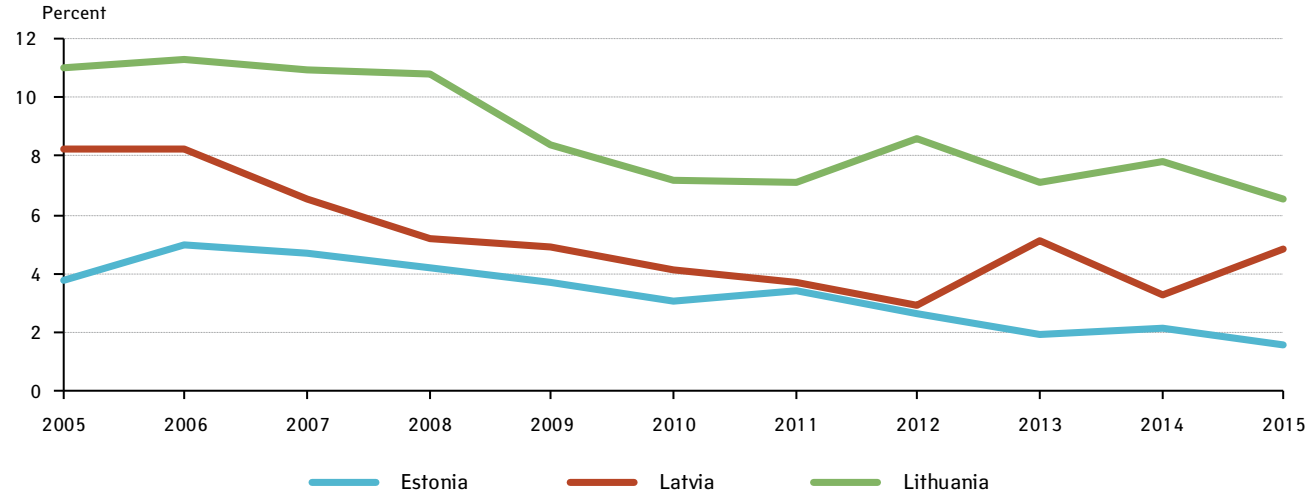

Notes: TB – tuberculosis; TB + HIV – tuberculosis with human immunodeficiency virus

## MDR cases of all new bacteriologically-confirmed pulmonary tuberculosis cases, %, 2005–2015




Source: ECDC. Note: MDR –multidrug resistant tuberculosis

## Deaths from tuberculosis per 100 000 population, 2005–2015



# HIV and AIDS incidence and mortality

HIV incidence rates are slightly rising in Latvia and Lithuania, and have declined by more than half in Estonia since 2005. Nevertheless, HIV rates in Estonia have been significantly higher than in the Baltic neighbouring countries throughout the last decade. In 2015, the HIV rate in Estonia was 20.5 per 100 000 population. It is only 3% higher than in Latvia, but almost four times higher than in Lithuania. Estonia and Latvia had the highest number of new HIV cases per population in the EU.

Until the end of 1990s, HIV in Baltics spread mainly sexually (both hetero- and homosexually). During the interim period until 2007 in Lithuania, 2012 in Estonia and about 2014 in Latvia, the most common way of transmission was through sharing infected injecting equipment among injecting drug users. In the last years, the percentage of sexual contact transmission of HIV (especially heterosexual) has increased again (UNAIDS, 2015).

Among all new HIV cases in 2015, the proportion of women was about a quarter in Lithuania, one-third in Latvia and about 40% in Estonia. The change in morbidity rates has been similar for men and women.

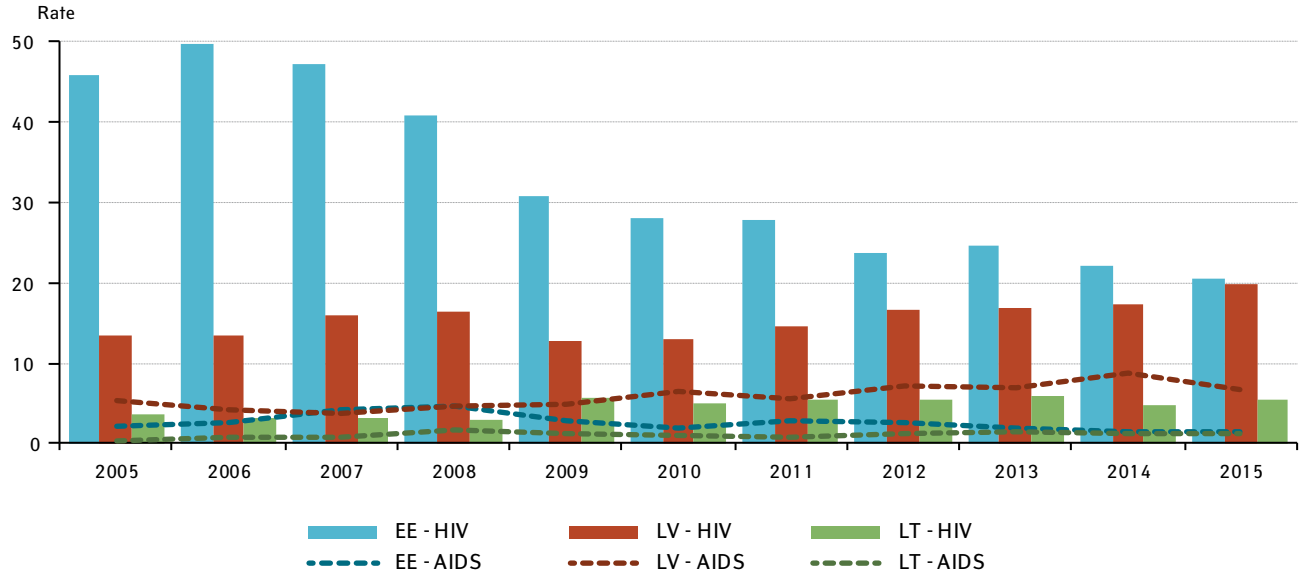
The rate of new AIDS cases has decreased by one-third between 2005 and 2015 in Estonia, but has slightly increased in Latvia and in Lithuania. In Estonia, the decrease may be partly related to increased coverage with antiretroviral therapy, but partly related to underreporting of AIDS – there have been more deaths due to AIDS than new AIDS cases reported throughout the epidemic.

Over the 10 years period, mortality due to AIDS has risen in all Baltic countries, but the growth has been slightly bigger in Latvia. In 2015, the mortality rate for AIDS in Latvia was 4.3, in Estonia 3.4 and in Lithuania 0.6 deaths per 100 000 population. The increase in death rates has been similar for both men and women.

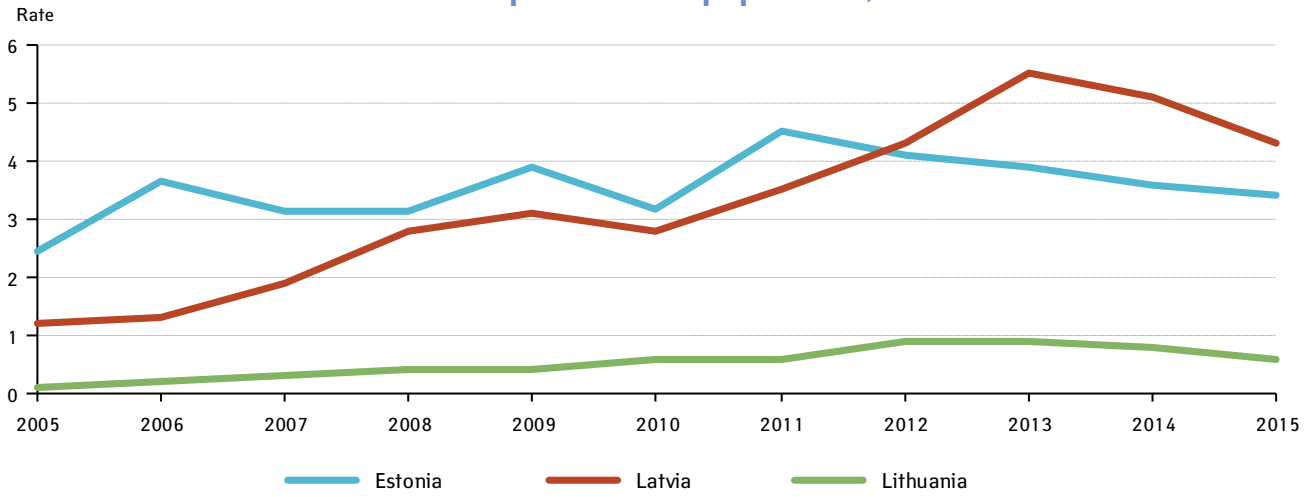
**In 2015, the highest rate of new cases of HIV in the EU was in Estonia and the highest number of new AIDS cases per population was registered in Latvia.**

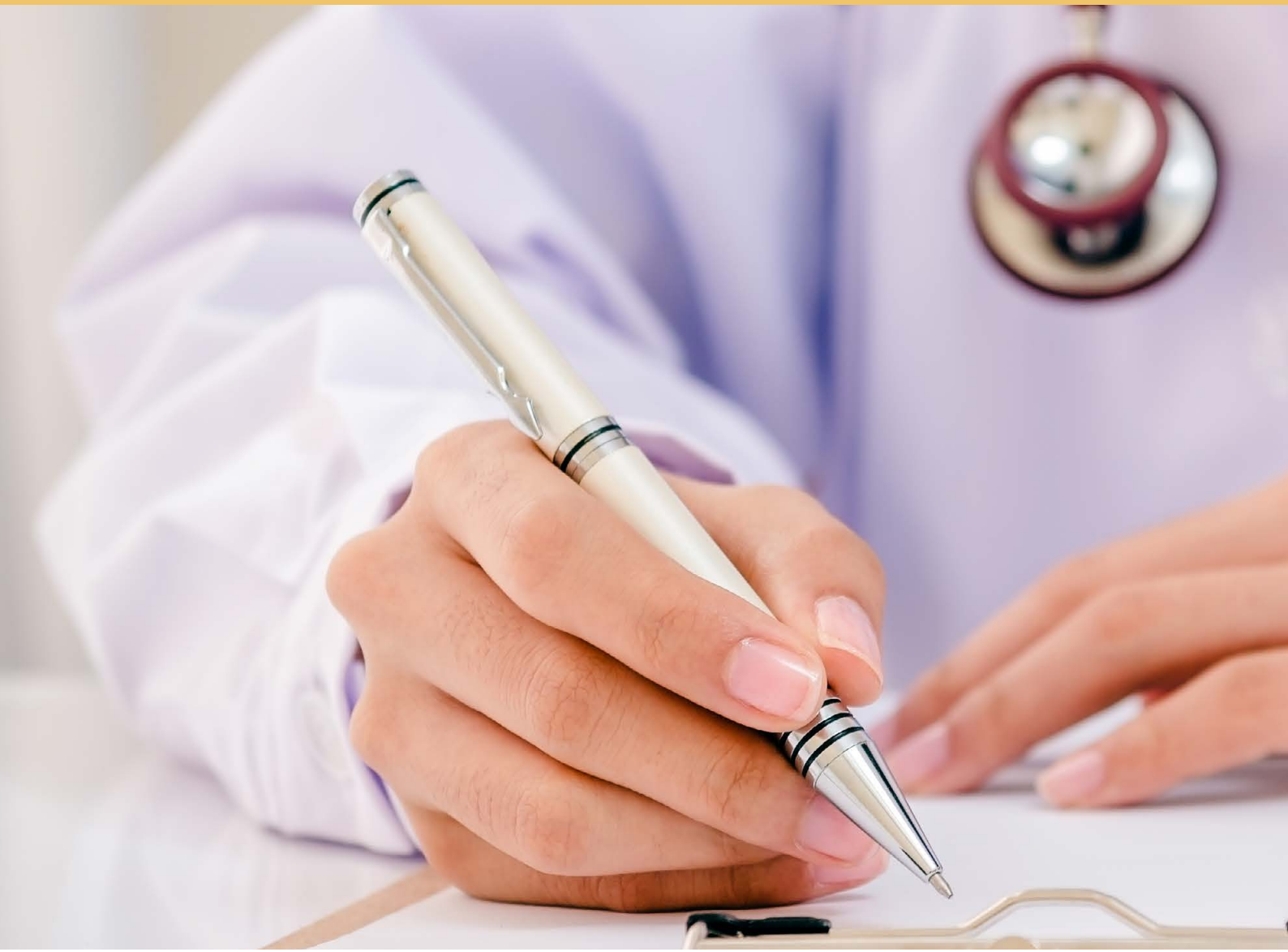
**The rate of new AIDS cases in the period of 2005–2015 has decreased in Estonia and increased in Latvia and Lithuania.**

## New cases of HIV and AIDS per 100 000 population, 2005–2015




## Deaths from AIDS per 100 000 population, 2005–2015





# HEALTH CARE RESOURCES AND SERVICES

# Hospital resources and their use

**In 2015, there were 3.4 hospitals per 100 000 population in Latvia, 4.2 hospitals in Estonia and 5.1 in Lithuania.**

**Hospitals**. In 2015, there were 3.4 hospitals per 100 000 population in Latvia compared to 4.2 in Estonia and 5.1 in Lithuania. The major reforms in the hospital sector and the reduction in the number of hospital beds have taken place in all Baltic countries already during the first decade of the millennium. In Estonia, in 2002, the Hospital Master Plan was introduced, which anticipated an optimum number of hospitals and hospital beds necessary to provide acute health care services. In Latvia, the dramatic reductions in the number of hospitals were conducted resulting from the financial and economic crisis in 2009–2012. Since 2003, several stages of restructuring the hospital network, as a part of a wider health care service reforms, took place also in Lithuania. However, in Lithuania, the target of reducing the hospitalisation rates significantly has not been achieved yet. During the last years, as major reforms in the hospitals network have already taken place, more changes occurred in the number of hospital beds and its exploitation.

## Hospitals per 100 000 population, 2015

| | acute | nursing | other |
|---|---|---|---|
| Estonia | 2.4 | 1.6 | 0.2 |
| Latvia | 1.9 | 0.6 | 0.9 |
| Lithuania | 2.5 | 1.8 | 0.8 |

Notes: The number of hospitals at the end of the year. Acute hospitals include beds of therapeutic specialities, surgical specialities, oncology, radiology, intensive care, beds for skin and sexually transmitted diseases, infectious diseases, paediatrics, neurology, radiology, ophtalmology, otorhinolaryngology, obstetrics and gyneacology. Other hospitals include rehabilitation and psychiatric hospitals (also tuberculosis hospitals in Latvia and Lithuania).

**Hospital beds**. The number of acute care beds in hospitals per population, and also the share of these beds of all hospital beds is decreasing in all Baltic countries. One reason for this is using less invasive treatments that allows to use day care instead of inpatient hospitalisation. Despite the overall decrease, the number of acute care beds varies by country, as also the pace of the decrease has been different. Due to the ageing of population there is an increasing need for nursing care beds. The number of nursing care beds per population has increased in all three countries as has the number of hospitalised patients in nursing care. By 2015, almost one-fifth of hospital beds were allocated to nursing care in the Baltics on average, while in 2005 the share was 10% from all hospital beds. The number of nursing care admissions has increased about fifteen times in Latvia, about two times in Estonia and by 25% in Lithuania by 2015 compared to 2005.

The average length of stay in hospitals altogether had remained at the same level in 2015 in Estonia when compared to 2005 – around 8 days. In Latvia, it has decreased from 10 days to 8 days. In Lithuania, the decrease has been from 10 days to 9. One hospital bed was used to give treatment on average to 33 patients in Estonia and Latvia in 2015, and to 31 patients in Lithuania. This bed turnover rate had remained the same in Estonia when compared to 2005, but it has increased by 14% in Latvia, and by 5% in Lithuania.

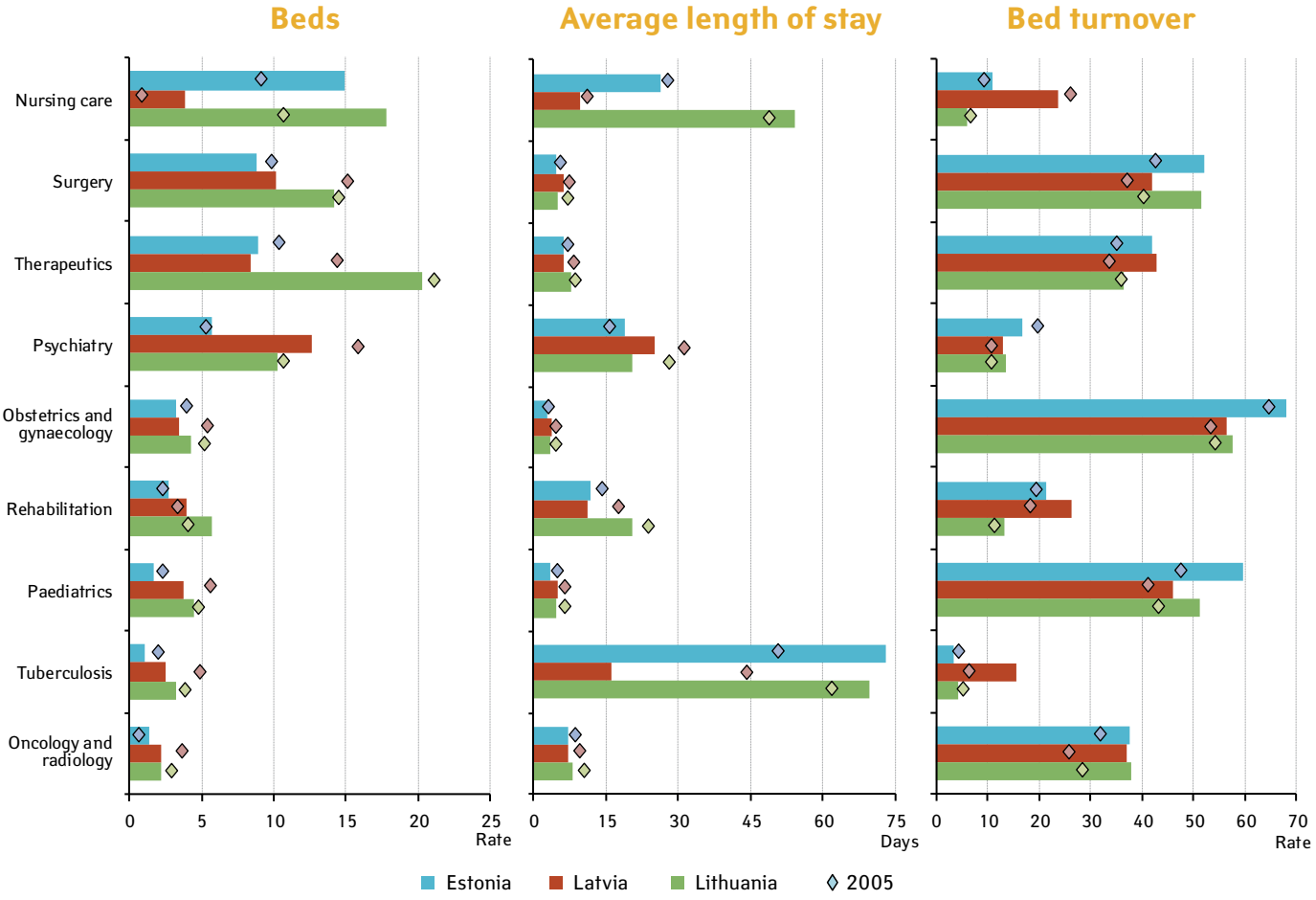
**The total number of hospital beds per 10 000 population in 2015 was 55.6 in Estonia, 56.9 in Latvia and 87.9 beds in Lithuania.**

## Hospital beds per 10 000 population

| | 2005 | | | 2015 | | |
|---|---|---|---|---|---|---|
| | acute | nursing | other | acute | nursing | other |
| Estonia | 35.7 | 9.2 | 9.8 | 31.3 | 14.9 | 9.4 |
| Latvia | 53.9 | 0.9 | 24.2 | 33.9 | 3.9 | 19.1 |
| Lithuania | 54.8 | 10.7 | 18.7 | 50.8 | 17.8 | 19.2 |

Notes: The number of hospital beds at the end of the year. Day care beds are excluded. **Acute care beds** include beds of therapeutic specialities, surgical specialities, oncology, radiology, intensive care, beds for skin and sexually transmitted diseases, infectious diseases, paediatrics, neurology, radiology, ophtalmology, otorhinolaryngology, obstetrics and gyneacology. **Other beds** include beds of rehabilitation and psychiatric care (also beds of tuberculosis in Latvia and Lithuania).

## Hospital beds per 10 000 population and beds use by speciality, 2005 and 2015




Notes: The number of hospital beds at the end of the year. Day care beds are excluded.
Therapeutics includes internal medicine, cardiology, gastroenterology, endocrinology, haematology, nephrology, pulmonology, rheumatology. Surgery includes general surgery, neurosurgery, thoractic surgery, cardiosurgery, traumatology, burns, orthopaedics, urology, oral surgery, vascular surgery, children surgery. Obstetrics and gynaecology includes also beds of pregnancy pathology.

**Hospital admissions and discharges**. In the period of 2005–2015, the number of hospital admissions has decreased the most in Latvia. Comparing to 2005, the number of admissions decreased by 18% in Latvia and by 3% in Estonia. At the same time, in Lithuania there has been a 3% increase in hospital admissions. In Latvia, the decrease in acute care admissions by 28% had the major part in overall decline of admissions, as the number of nursing care admissions increased about 15 times compared to 2005.

Diseases of the circulatory system are the main cause for hospitalisation in all three Baltic countries. The rate of discharges for this group of diagnosis vary from 287 per 100 000 population in Estonia to 428 in Lithuania. The average length of stay was the longest for mental disorders. It ranged from 17 days in Estonia to 22 days in Latvia. The shortest average length of stay was for the diseases of the eye and adnexa – from 2 to 3 days. Analysing by the total amount of hospital bed days, in Estonia and in Lithuania, the biggest share of bed-days were spent in hospitals due to the circulatory system diseases – more than one-fifth, followed by the mental and behavioural disorders (on average 14%). In Latvia, the biggest share of hospital bed-days belonged to the mental and behavioural disorders (25%), followed by the circulatory system diseases (15%).

**The highest number of hospital discharges in the Baltic countries in 2015 was in Lithuania – 2263 discharges per 10 000 population, following by Latvia with 1796 and Estonia with 1656 discharges.**

## Hospital admissions per 10 000 population

| | 2005 | | | 2015 | | |
|---|---|---|---|---|---|---|
| | acute | nursing | other | acute | nursing | other |
| Estonia | 1 578.6 | 81.1 | 160.0 | 1 466.2 | 151.2 | 148.2 |
| Latvia | 2 028.7 | 6.1 | 238.6 | 1 470.7 | 90.9 | 307.4 |
| Lithuania | 2 117.5 | 73.7 | 180.6 | 2 131.4 | 91.8 | 209.8 |

Notes: Acute hospital admissions include beds of therapeutic specialities, surgical specialities, oncology, radiology, intensive care, beds for skin and sexually transmitted diseases, infectious diseases, paediatrics, neurology, radiology, ophtalmology, otorhinolaryngology, obstetrics and gyneacology. Nursing care admissions in acute and nursing care hospitals (only in acute care hospitals for Latvia). Other hospital admissions include rehabilitation and psychiatric hospitals (also tuberculosis hospitals in Latvia and Lithuania).

## Hospital discharges and average length of stay, 2015

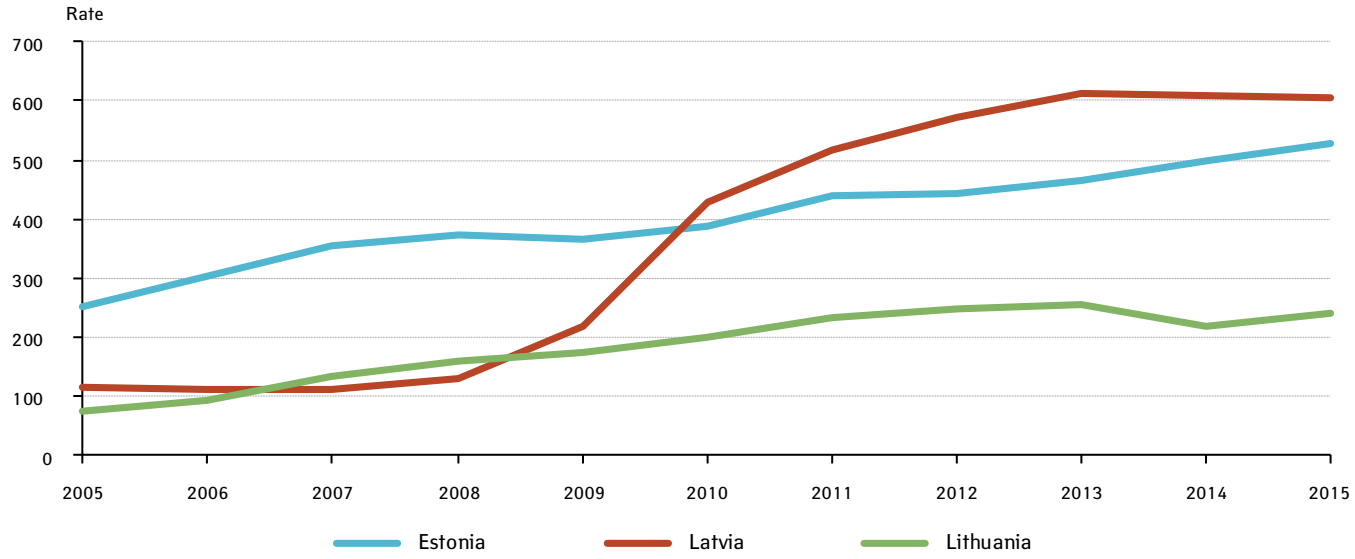
| Groups of diseases | ICD-10 code | Discharges per 10 000 population | | | Average length of stay | | |
|---|---|---|---|---|---|---|---|
| | | Estonia | Latvia | Lithuania | Estonia | Latvia | Lithuania |
| Certain infectious and parasitic diseases | A00–B99 | 62.2 | 85.5 | 99.6 | 9.2 | 9.6 | 12.0 |
| Neoplasm | C00–D48 | 201.6 | 178.9 | 197.6 | 7.5 | 7.8 | 8.3 |
| Diseases of the blood and blood forming organs and certain disorders involving the immune mechanisms | D50–D89 | 15.5 | 11.9 | 14.3 | 6.6 | 6.0 | 7.9 |
| Endocrine, nutritional and metabolic diseases | E00–E90 | 32.8 | 29.5 | 39.0 | 7.5 | 7.8 | 8.1 |
| Mental disorders and behavioural disorders | F00–F99 | 101.8 | 164.8 | 126.3 | 17.0 | 22.3 | 20.9 |
| Diseases of the nervous system | G00–G99 | 56.6 | | 79.1 | 7.5 | | 8.6 |
| Diseases of the eye and adnexa | H00–H59 | 13.8 | 93.9 | 60.3 | 1.7 | 5.5 | 2.9 |
| Diseases of the ear and mastoid process | H60–H95 | 14.5 | | 17.1 | 3.1 | | 6.4 |
| Diseases of the circulatory system | I00–I99 | 287.1 | 317.1 | 427.5 | 10.0 | 6.9 | 9.4 |
| Diseases of the respiratory system | J00–J99 | 148.1 | 166.6 | 231.1 | 5.0 | 6.5 | 7.2 |
| Diseases of the digestive system | K00–K93 | 142.2 | 143.3 | 196.7 | 4.8 | 5.5 | 5.8 |
| Diseases of the skin and subcutaneous tissue | L00–L99 | 34.8 | 24.8 | 38.5 | 7.0 | 7.5 | 7.4 |
| Diseases of the musculo-skeletal and connective tissue | M00–M99 | 109.2 | 140.9 | 192.6 | 6.5 | 8.2 | 7.8 |
| Diseases of the genitourinary system | N00–N99 | 92.8 | 93.4 | 131.0 | 4.7 | 4.7 | 5.2 |
| Pregnancy, childbirth and puerperium* | O00–O99 | 287.4 | 295.6 | 280.1 | 2.8 | 3.8 | 4.0 |
| Certain conditions originating in perinatal period** | P00–P96 | 2 627.2 | 1792.1 | 3 514.1 | 6.7 | 8.0 | 5.8 |
| Congenital malformations, deformations and chromosomal abnormalities | Q00–Q99 | 15.9 | 12.7 | 15.7 | 4.7 | 8.0 | 6.2 |
| Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified | R00–R99 | 18.4 | 3.9 | 17.7 | 3.8 | 4.1 | 10.4 |
| Injury, poisoning and certain other consequences of external causes | S00–T98 | 113.2 | 149.3 | 150.4 | 8.1 | 6.6 | 8.6 |
| Factors influencing health and contacts with health services | Z00–Z99, excl. Z03 | 15.4 | ... | 26.6 | 9.1 | ... | 7.5 |
| TOTAL | A00–Z99, excl. Z03 | 1 656.4 | 1 796.2# | 2 263.2 | 7.3 | 8.1# | 8.4 |

Notes: Hospital discharges by principal diagnosis, excluding hospital day cases. Excluded: healthy newborns and stillborns, patients transferred to another hospital or deemed to be healthy (ICD-10 code Z03).
* Per 10 000 women; ** Per 10 000 children aged under 1; # ICD-10 codes Z00–Z99 are excluded.
EE: Includes nursing cases in acute care hospitals. LV: The cases of the deceased are not taken into account when calculating the average length of stay. Nursing cases are excluded. LT: Nursing cases are excluded.

**Hospital day cases**. The relevance of day care besides outpatient and inpatient medical care is increasing in all three countries due to the more effective use of resources. When compared to 2005, the number of day cases in hospitals per population has increased two times in Estonia, and more than five times in Latvia. The number of day cases per population in Lithuania is significantly lower than in the other two countries. However, the number of day cases in hospitals has also increased more than three times in Lithuania when compared to 2005.

**The number of day cases in hospitals has increased two times in Estonia, over three times in Lithuania and more than five times in Latvia in the period of 2005 and 2015.**

## Hospital day cases per 10 000 population, 2005–2015

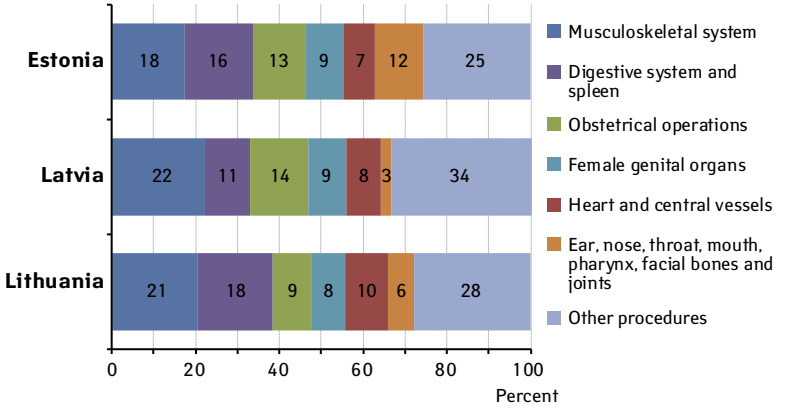



Note: EE: counted by cases (one day care case may include several bed days); LV: counted by treated patients; LT: counted by cases.

**Musculoskeletal surgical procedures are the most common group of surgical operations in hospitals in the Baltic countries.**

**Inpatient surgical procedures.** Classification systems and registration practices of surgical procedures vary across countries, which may affect the comparability of the data. However, analysing the proportions of the surgical procedures by different organ-systems, operations on bones and muscle tissue were the most common surgical procedures in hospitals of all the Baltic countries. In 2015, about one-fifth of all operated patients had problems with the musculoskeletal system. The next more frequent group of surgical interventions in Estonia and Lithuania were the gastrointestinal operations. In Latvia, the share of obstetrical operations slightly exceeded the surgery on digestive system.

## Surgical operations and procedures in hospitals, %, 2015




## Hip and knee replacement procedures per 100 000 population, 2015

| | Hip replacement | Total knee replacement |
|---|---|---|
| Estonia | 155.8 | 93.6 |
| Latvia | 141.7 | 81.5 |
| Lithuania | 195.6 | 83.3 |
| EU-25* | 188.7 | 130.0 |

Notes: *EU data for 2014. Data unavailable for Bulgaria, Greece and Netherlands.

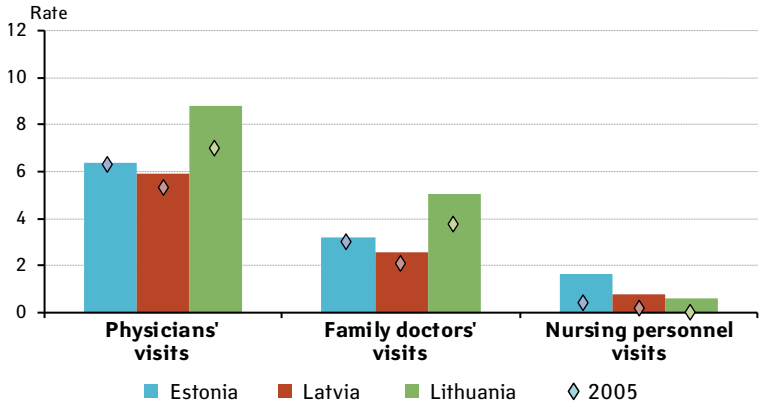
Hip and knee replacement surgery is considered the most effective intervention for severe osteoarthritis, to reduce the pain and disability associated with this musculoskeletal condition. In 2015, the rate of hip replacement procedures per population in Lithuania was at the same level as the EU average in 2014. In Estonia and Latvia there have been less possibilities to perform these procedures. The rates of knee replacements in the Baltics were on average one-third lower than the EU countries' average rate.

# Outpatient visits

**Comparing to 2005, the number of family doctors' outpatient visits in 2015 has increased by 7% in Estonia, by 24% in Latvia and by 35% in Lithuania.**

Comparing to 2005, the number of physicians' visits per person has increased in all three countries. The biggest increase has taken place in Lithuania with almost 30%. In Latvia the increase was 11% and in Estonia only 1%. In Estonia and Latvia, the increase in physicians' visits was in large part due to the increase of family doctors' outpatient visits – the number of specialist doctors' visits per person had not increased in Estonia and showed only minor increase in Latvia in 2015 compared to 2005.

## Doctors' and nursing personnel visits per person, 2005 and 2015




Notes: Visits include outpatient and home visits, exclude telephone and e-consultations.
**Physicians' visits** include family doctors' visits, exclude dentists' visits.
**Nursing personnel** includes nurses and midwives.
LT: Family doctors' visits include also district therapists' and paediatricians' visits.

The number of family doctors' home visits has declined significantly in all three countries – from a 14% drop in Latvia to 74% in Estonia. At the same time, all three Baltic countries have experienced the fast growth of nursing personnel visits. Registered visits per person have increased by four times in Estonia and Latvia. In Lithuania, there were almost no nursing personnel visits done in 2005, but in 2015 the rate was 0.6 visits per person.

## Family doctors' home visits per 100 population

| | 2005 | | 2015 |
|---|---|---|---|
| Estonia | 10.9 | ↓ | 2.8 |
| Latvia | 13.6 | ↓ | 11.7 |
| Lithuania | 24.9 | ↓ | 13.4 |

# Blood donation

**In 2015, the highest rate of blood donations in the Baltic countries was in Estonia – 44.9 per 1000 population, followed by Lithuania with 34.6 and Latvia with 30.6 donations per 1000 population.**

Blood donation takes important part of health care; it saves lives and improves health. Blood is most frequently needed for cancer patients, during or after childbirth, many complex medical and surgical procedures, for people with anaemia, severe trauma with bleeding and on other diseases. According to WHO, the median blood donation rate in high-income countries is 33.1 donations per 1000 people (WHO, 2016). In 2015, that number was higher in Baltic countries for Estonia and Lithuania, 44.9 and 34.6 donations per 1000 population respectively.

WHO estimates that blood donation by 1% of the population is generally the minimum needed to meet a nation's most basic requirements for blood. It has also been suggested that for ensuring the sustainable supply of blood in developed countries, at least 4–5% of the population should be active donors (IFRC, 2002). In the Baltic countries, the percentage of donors in population in 2015 remained below the suggested level – varying from 1.7% in Latvia and 2.2% in Lithuania to 2.6% in Estonia.

## Blood donors and donations, 2015

| | Estonia | Latvia | Lithuania |
|---|---|---|---|
| Percentage of donors in population, % | 2.6 | 1.7 | 2.2 |
| Percentage of new donors in population, % | 0.5 | 0.4 | 1.0 |
| Number of blood donations, per 1000 population | 44.9 | 30.6 | 34.6 |

# Pharmacy

With the growth of medical visits and overall rise of some chronic diseases in population, the prescribing of different pharmaceuticals has increased in many categories. It is estimated that about 9% of European population have diabetes (IDF, 2015). The estimations for Baltic countries are slightly lower. The volume for antidiabetics sales has increased by 65% in Baltic countries on average and 21% across EU since 2008. Although the growth of antidiabetics sales has been higher in the Baltics than in EU on average, the sale figures are still about 27% lower in the Baltic countries.

The sales of antihypertensives in 2015 were highest in Lithuania, surpassing the EU average even two and a half times. The sales numbers in Estonia and Latvia stayed lower than in EU on average.

The sales of cholesterol-lowering drugs have increased by one-third since 2008 on average in EU. The growth has been even more rapid in the Baltics – almost two times higher in Lithuania, three times higher in Estonia and even three and a half times higher for Latvia. However, the consumption in the Baltics on average remained two times lower than across EU. Growing obesity rate is one important factor behind the anticholesterol sales increase.

**The sales of anticholesterols in Baltics have increased rapidly over the period of 2008–2015 – the growth ranging from two times in Lithuania to three and half times in Latvia.**

Since over-consumption of antibiotics has been linked to bacterial resistance, it is important to keep the antibiotics prescribing low in population. Baltic countries had on average 18% lower antibiotics sales in 2015 than the EU on average in 2014.

**In 2015, the sales of antibiotics in the Baltic countries were on average 18% lower than in the EU on average in 2014.**

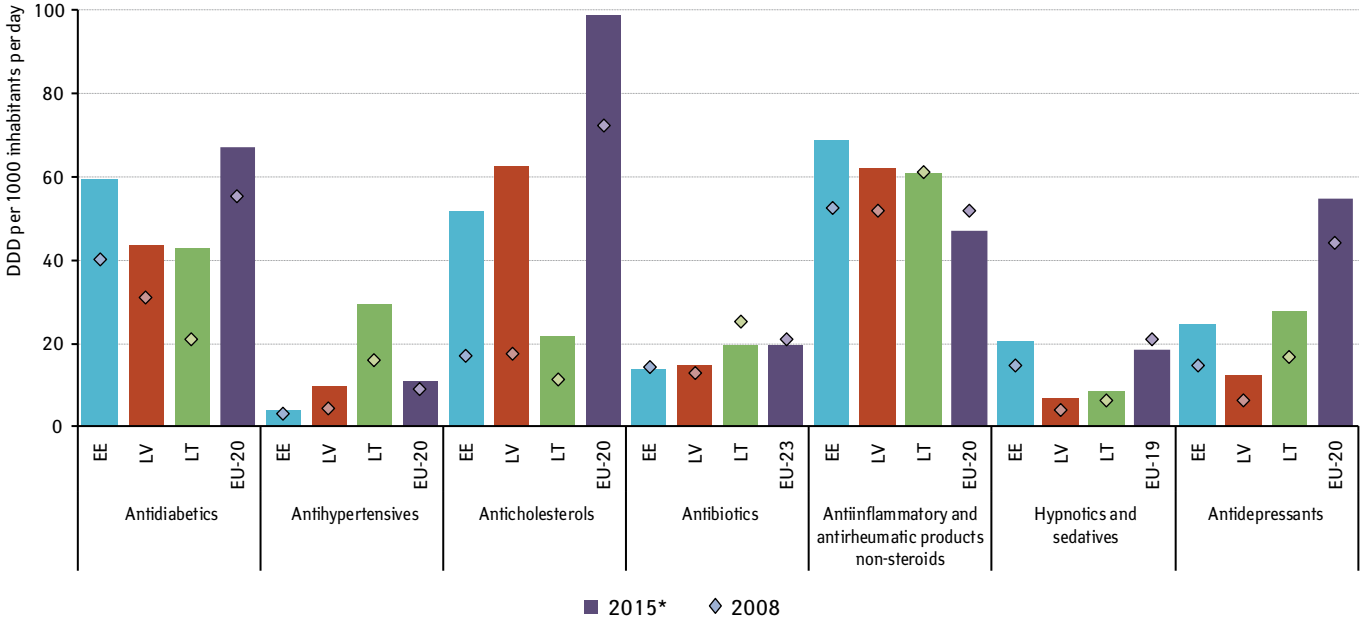
The sales of antiinflammatory and antirheumatic products non-steroids in 2015 were on average one-third higher in the Baltic countries than in the EU in 2014.

Hypnotics and sedatives were most sold in Estonia, where the sales numbers were comparable with the EU average level. In Latvia and Lithuania, the sales volumes of hypnotics and sedatives were smaller by nearly 60%.

**The sales of antidepressants have shown a 77% growth across the Baltics since 2008.**

The antidepressants sales shows also a 77% growth across the Baltics since 2008. It can be related to the growing awareness of different types of depressions and anxiety disorders, and longer treatment durations (Moore et al., 2009). In the Baltics in 2015, antidepressants were sold most in Lithuania. In Latvia, where the sale was the smallest, it was over two times lower. Compared to EU's average, antidepressants sales figures in the Baltics are still nearly three times smaller.

## Pharmaceutical sales, 2008 and 2015



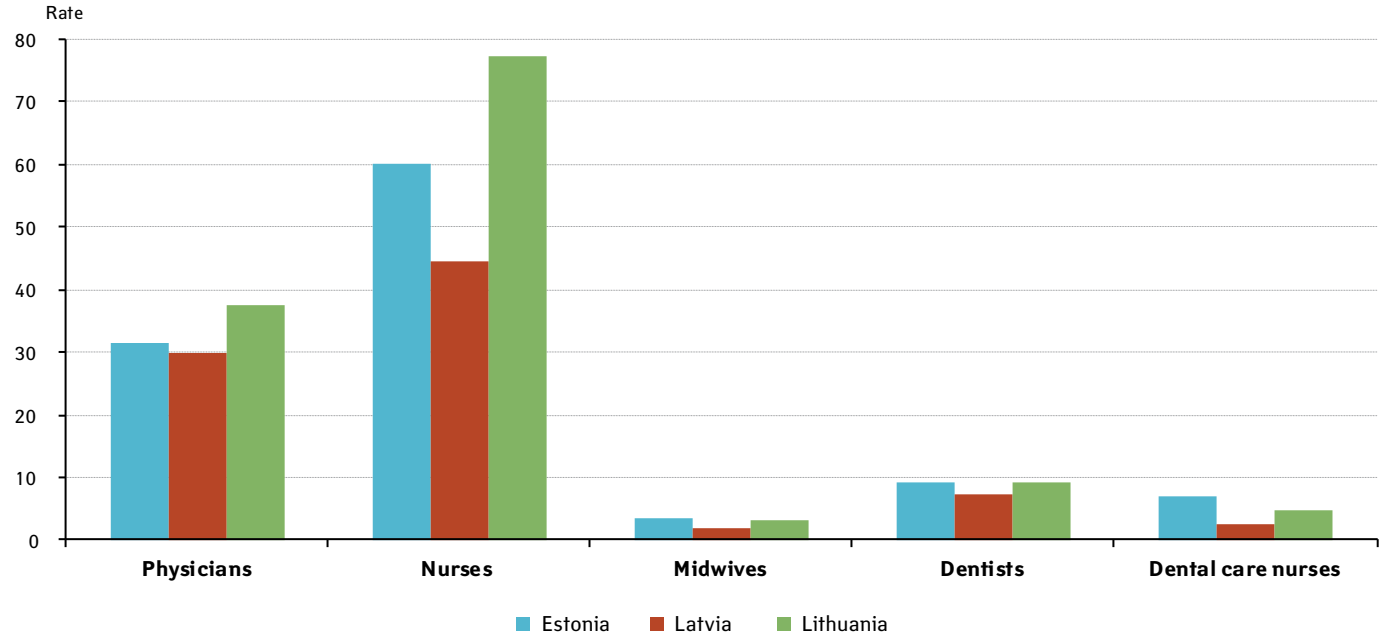

Notes: DDD – defined daily dose.
Pharmaceuticals are classified by Anatomical Therapeutic Chemical Classification System (ATC) codes: antidiabetics – A10, antihypertensives – C02, anticholesterols – C10, antibiotics – J01, antiinflammatory and antirheumatic products non-steroids – M01A, hypnotics and sedatives – N05C, antidepressants – N06A. The pharmaceutical sales include sales to general and hospital pharmacies and other institutions (state health care and scientific institutions) by medicinal products sold by wholesalers.
*EU data for 2014. EU-19 data for: Austria, Czech Republic, Denmark, Estonia, Finland, Germany, Greece, Hungary, Italy, Latvia, Lithuania, Luxembourg, Netherlands, Portugal, Slovak Republic, Slovenia, Spain, Sweden, United Kingdom. EU-20: EU-19 including Belgium. EU-23: EU-20 including France, Ireland and Poland.

# Health care personnel

The largest number of doctors and nurses per population in the Baltics are working in Lithuania – 38 doctors and 77 nurses per 10 000 population, which is on average one-third more than in the other two countries. In 2015, there were two nurses per one doctor in Estonia and Lithuania. In Latvia, this ratio was 1.5. The number of dentists per population is quite the same in Estonia and Lithuania – about 9 dentists per 10 000 population. In Latvia, there are 7 dentists per 10 000 population. The ratio of dental care nurses per dentist is less than one in all three countries.

**In 2015, the number of doctors per 10 000 population was 38 in Lithuania, 31 in Estonia and 30 in Latvia.**

## Practising health care personnel per 10 000 population, 2015



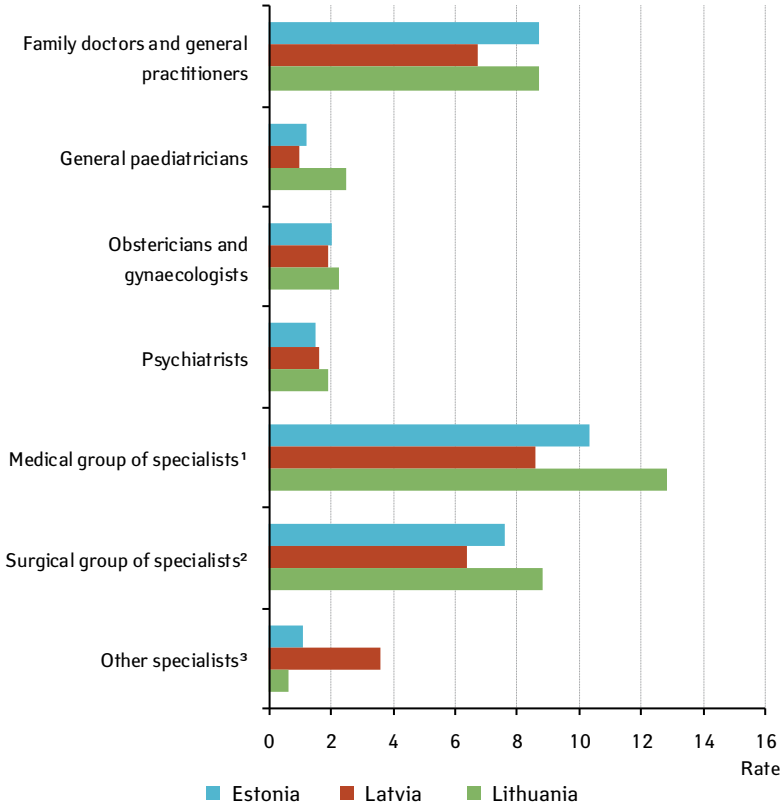
## Average age of practising health care personnel, 2015

| | Estonia | Latvia | Lithuania |
|---|---|---|---|
| Physicians | 52.9 | 54.0 | 49.0 |
| Nurses | 44.9 | 48.6 | 49.1 |
| Dentists | 46.8 | 49.2 | 47.2 |

Note: Physicians are without dentists, nurses are without dental care nurses and midwives.

The average age of practising physicians is the lowest in Lithuania (49.0), whereas the average age of practising nurses is the highest (49.1). The youngest dentists are in Estonia (average age 46.8 years). Although the retirement ages are rising, it seems that a considerable number of doctors and nurses continue practising even beyond that age – the average age of practising health care personnel is reaching 50 years or above already.

## Practising physicians by occupation per 10 000 population, 2015




Notes: Physicians are without resident physicians. Nurses are without midwives and dental care nurses/assistants.
[1] Include specialists of internal medicine, infectology, cardiologists, rheumatologists, endo-crino-logists, gastroenterologists, haematologists, pulmonologists, oncologists, neurologists, oto-rhino-laryngologists, radiologists, microbiology-bacteriologists, dermatologists, pathologists, occupational medicine and therapists.
[2] Include general surgeons, neurosurgeons, thoracic surgeons, cardiovascular surgeons, nephro-logists, urologists, plastic surgeons, transplantologists, paediatric surgeons, traumatologists, orthopaedists, ophtalmologists, intensive care and anaesthesiologists, accident and emergency medicine.
[3] Include all other specialities (clinical microbiology, medical genetics, hygienists, forensic medicine experts, etc.).
LT, LV: psychiatrists include narcologists and psychotherapy specialists.

# Salary

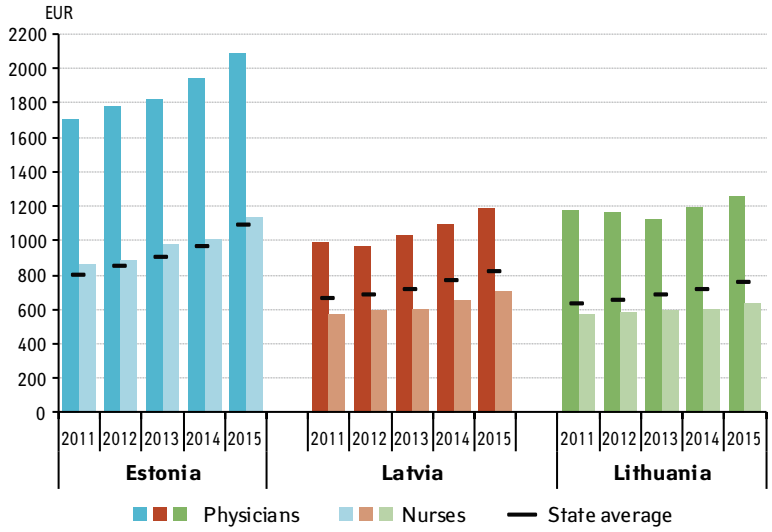
**In 2015, physicians' average gross wage in Estonia was 2088, in Latvia 1183 and in Lithuania 1154 Euros.**

The state average gross wage in all Baltic countries has been steadily rising during the last four years. Comparing 2015 to 2011, the state average gross wage has increased by 38% in Estonia, 24% in Latvia, and 20% in Lithuania.

The increase of physicians' and nurses' average gross wage between 2011 and 2015 is more similar in Estonia and Latvia. In Lithuania, the increase has been slower. In 2015, physicians' average gross wage in Estonia was 2088, in Latvia 1183 and in Lithuania 1154 Euros. It is 22% for Estonia, 19% for Latvia, and 6% for Lithuania more than in 2011.

In 2015, nurses' average gross wage in Estonia was 1129, in Latvia 705, and in Lithuania 636 Euros. Compared to 2011, nurses' average gross wage had increased by 30%, 23% and 10%, respectively. Nurses' average salary formed 54% of the country's average physicians' salary in Estonia, 51% in Lithuania and 60% in Latvia.

## Average monthly salary of medical personnel, 2011–2015




Note: Average salary includes personal income tax, and other taxes paid by the employee; basic additional remuneration, additional payments for evening work, night work, work on days off or during public holidays, and additional payments for overtime. It does not include social tax and other social contributions paid by the employer. Physicians include dentists and resident physicians. Nurses include midwives and dental care nurses/assistants. State average is given according to the data collection time of medical personnel salary, except for LV (EE: I quarter; LV: year average; LT: IV quarter).
EE: physicians' and nurses' average salary also includes irregular additional payments (quarterly and annual bonuses and other irregular performance and value payments), paid in March. All health care providers are covered, but only full-time employees, i.e. those who worked with full workload and for the whole month under survey.
LV: data cover contracting organisations of the National Health Service that provide state-paid health care services. Physicians include also functional specialists (physiotherapists, speech therapists, dietary specialists, ergotherapy specialists, etc.). Nurses include also medical personnel with professional higher education of the 1st and 2nd level, professional secondary education and vocational education, and assistants of functional specialists.
LT: physicians' and state average salary do not cover self-employed persons. Physicians' average salary covers only physicians working in public institutions. Nurses include also other medical specialists with higher medical education, working in institutions that have contracts with Compulsory Health Insurance Fund. Nurses' salary is the year average.

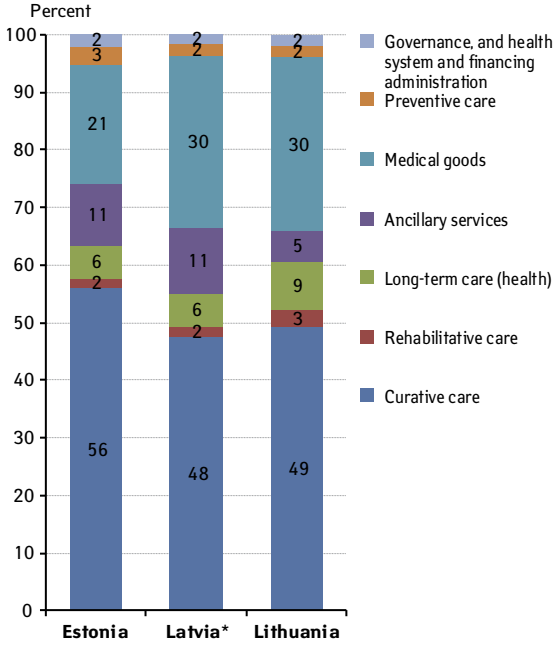
# Health expenditure

**The share of the country's health care expenditure in GDP in 2015 (2014 for Latvia) was 6.5% in Estonia and Lithuania and 5.5% in Latvia.**

Current health care expenditure per person in 2015 (2014 for Latvia) was the highest in Estonia and the lowest in Latvia (1004 EUR and 650 EUR, respectively). In Lithuania, it was 17% lower than in Estonia. However, the share of the country's health care expenditure in GDP was the same as in Estonia – 6.5%. This is also because of the relatively high household out-of-pocket health expenditure in Lithuania. Although in Latvia, its share in current health expenditure is even higher (39%). Therefore, the share of public sector in health financing was the biggest in Estonia (76%) and the smallest in Latvia (60%).

All three countries' health care financing systems are focused on curative health care. In Estonia, the share spent on curative health care is more than half, in Latvia and Lithuania a bit less than half of all health spending. In Latvia and Lithuania, medicines and other medical goods have bigger share in health expenditure than in Estonia – about 30% compared to 21% in Estonia. Lithuania invests more than other two countries in long-term health care, proportionally from current health expenditure as well as per capita.

## The structure of current health expenditure by health care function, 2015 (or latest year)




Notes: Data calculated according to the OECD-Eurostat-WHO methodology System of Health Accounts 2011 (SHA 2011).
* LV data for 2014.

## Health expenditure, 2015 (or latest year)

| | Estonia | Latvia* | Lithuania |
|---|---|---|---|
| The share of current health expenditure in GDP, % | 6.5 | 5.5 | 6.5 |
| Current health expenditure per capita, EUR | 1 004.3 | 650.4 | 837.1 |
| The share of public sector health care schemes in current health expenditure, % | 75.7 | 59.9 | 66.9 |
| The share of household out-of-pocket payment in current health expenditure, % | 22.8 | 38.9 | 32.1 |

Notes: Data calculated according to the OECD-Eurostat-WHO methodology System of Health Accounts 2011 (SHA 2011). GDP – gross domestic product.
* 2014 for Latvia

# Definitions

**Abortion** – spontaneous or induced (legal, therapeutic, criminal) abortion is the termination of pregnancy by removing the embryo or foetus during the first 22 weeks of gestation.

**Age-standardisation** – a technique used to allow populations to be compared when the age profiles of the populations are quite different. If rates are age-standardised, then differences in the rates over time or between geographical areas do not simply reflect variations in the age structure of the populations.

**Bed turnover** – average number of patients per hospital bed in observed period.

**Body mass index (BMI)** – distribution of the population according to their body mass index (BMI). BMI is defined as the weight in kilos divided by the square of the height in meters.

**Day care** – the patient is discharged on the same day as admitted to the hospital.

**Defined daily dose** – the assumed average maintenance dose per day for a drug used for its main indications in adults. The defined daily dose is a unit of measurement and does not necessarily reflect the recommended or real dose.

**Early neonatal death** – death occurring at the age of 0–6 full days of life. The first day of life is considered as day zero.

**Fertility rate** – annual number of live births per 1000 women 15–49 years of age.

**Gross domestic product (GDP)** – the market value of the total final output of goods and services produced in a country over a specific period.

**Gross national income (GNI)** – the sum of value added by all producers who are residents in a nation, plus any product taxes (minus subsidies) not included in output, plus income received from abroad such as employee compensation and property income.

**Healthy life years** – the average number of years an individual is expected to live free of disability if current patterns of mortality and disability continue to apply.

**Hospital discharge** – the formal release of an inpatient from a hospital after a course of treatment.

**Human development index** – a summary measure of country's average achievement in three basic aspects of human development: a long and healthy life, being knowledgeable and have a decent standard of living. Longevity is measured by life expectancy at birth; knowledge is measured by a combination of adult literacy rate and the combined primary, secondary and tertiary gross enrolment ratios; and standard of living by GDP per capita.

**Incidence** – the occurrence of new cases of disease in the population during a certain period of time.

**Induced abortions** – includes legal and therapeutic abortion; the deliberate termination of pregnancy.

**Infant death** – a live-born infant who dies during the first year of life.

**Inpatient** – a patient who is formally admitted to hospital for diagnosis, treatment and/or care and stays for a minimum of one night or more than 24 hours in the hospital.

**Life expectancy** – the average remaining lifetime in years for persons who attain a given age if mortality remains unchanged. At the age of 0 – the life expectancy at birth.

**Live birth** – a foetus that after complete expulsion or extraction from its mother breathes or shows any other evidence of life irrespective of the duration of the pregnancy.

**Maternal death** – the death of a woman while pregnant or within 42 days after termination of pregnancy irrespective of the duration and the site of the pregnancy from any cause related to or aggravated by the pregnancy or its management but not from accidental or incidental causes.

**Neonatal death** – death occurring at the age of 0–27 full days of life. The first day of life is considered as day zero.

**Perinatal death** – foetal deaths and live-born infants who die at the age of 0–6 full days of life. The standard rate is used for international comparison including births with a weight of 1000 g or more.

**Stillbirth** – death prior to the complete expulsion or extraction from its mother of a foetus after 22 weeks of gestation. The standard rate is used for international comparison including births with a weight of 1000 g or more.

**Total fertility rate** – the average number of children that would be born per woman if all women lived to the end of their childbearing years and bore children according to a given set of age-specific fertility rates.

# References


1. Databases of Central Statistical Bureau of Latvia. http://csb.gov.lv.
2. *Demographic Yearbook 2015*. Vilnius: Statistics Lithuania. https://osp.stat.gov.lt/services-portlet/pub-edition-file?id=23462.
3. ECDC (2015). *Seasonal influenza vaccination in Europe – Overview of vaccination recommendations and coverage rates in the EU Member States for the 2012–13 influenza season.* Stockholm: European Centre for Disease Prevention and Control. http://ecdc.europa.eu/en/publications/Publications/Seasonal-influenza-vaccination-Europe-2012-13.pdf.
4. ECDC (2016). *Annual Epidemiological Report 2016 – Pertussis.* Stockholm: European Centre for Disease Prevention and Control. http://ecdc.europa.eu/en/healthtopics/Pertussis/Pages/Annual-epidemiological-report-2016.aspx.
5. ECDC (2016). *Annual Epidemiological Report 2016 – Tick-borne encephalitis.* Stockholm: European Centre for Disease Prevention and Control. http://ecdc.europa.eu/en/healthtopics/emerging_and_vector-borne_diseases/tick_borne_diseases/tick_borne_encephalitis/Pages/Annual-epidemiological-report-2016.aspx
6. ECDC (2017). *Annual epidemiological report for 2015 – Hepatitis B.* Stockholm: European Centre for Disease Prevention and Control. http://ecdc.europa.eu/en/healthtopics/hepatitis_B/Pages/Annual-Epidemiological-Report-for-2015.aspx.
7. ECDC (2017). *Annual epidemiological report for 2015 – Hepatitis C.* Stockholm: European Centre for Disease Prevention and Control. http://ecdc.europa.eu/en/healthtopics/hepatitis_C/Pages/Annual-Epidemiological-Report-for-2015.aspx.
8. ECDC and WHO Regional Office for Europe (2016). *Tuberculosis surveillance and monitoring in Europe 2016.* Stockholm: European Centre for Disease Prevention and Control. http://ecdc.europa.eu/en/publications/Publications/ecdc-tuberculosis-surveillance-monitoring-Europe-2016.pdf.
9. ECDC and WHO Regional Office for Europe (2017). *Tuberculosis surveillance and monitoring in Europe 2017.* Stockholm: European Centre for Disease Prevention and Control. http://ecdc.europa.eu/en/publications/Publications/ecdc-tuberculosis-surveillance-monitoring-Europe-2017.pdf.
10. ETSC (2016). *Ranking EU progress on road safety – 10th Road Safety Performance Index Report.* Brussels: European Transport Safety Council. http://etsc.eu/wp-content/uploads/AR-2016-FINAL.pdf.
11. European Mortality Database. WHO Regional Office for Europe. http://data.euro.who.int/hfamdb/ (01.03.2017).
12. Eurostat database. http://ec.europa.eu/eurostat/data/database (28.04.2017).
13. Health for All database. WHO Regional Office for Europe. http://data.euro.who.int/hfadb/ (21.04.2017).
14. Health Statistics and Health Research Database of National Institute for Health Development. http://www.tai.ee/tstua (28.04.2017).
15. Health Statistics Data Portal, Health Information Centre, Institute of Hygiene. http://stat.hi.lt/.
16. *Health Statistics of Lithuania 2015*. Vilnius: Health Information Centre, Institute of Hygiene. http://www.hi.lt/health-statistic-of-lithuania.html.
17. *Human Development Report 2016*. New York: United Nations Development Programme. http://hdr.undp.org/en/2016-report.
18. IDF (2015). *Diabetes Atlas, Seventh Edition.* International Diabetes Federation. http://www.diabetesatlas.org/.
19. Institute of Hygiene. www.hi.lt/en/.
20. IFRC (2002). *Making a difference. Recruiting voluntary, non-remunerated blood donors.* Geneva: International Federation of Red Cross and Red Crescent Societies.
21. Kohalike omavalitsuste portaal. http://portaal.ell.ee/1449 (15.03.2017).

22. Mitenbergs U, Taube M, Misins J, Mikitis E, Martinsons A, Rurane A, Quentin W. (2012). Latvia: Health system review. *Health Systems in Transition*, 2012; 14(8): 1–191. http://www.euro.who.int/__data/assets/pdf_file/0006/186072/e96822.pdf?ua=1.

23. Moore, M. et al (2009). Explaining the rise in antidepressant prescribing: a descriptive study using the general practice research database. *BMJ* 2009;339:b3999. http://www.bmj.com/content/bmj/339/bmj.b3999.full.pdf.

24. Murauskiene L, Janoniene R, Veniute M, van Ginneken E, Karanikolos M. (2013). Lithuania: health system review. *Health Systems in Transition*, 2013; 15(2): 1–150. http://www.euro.who.int/__data/assets/pdf_file/0016/192130/HiT-Lithuania.pdf?ua=1.

25. National Health Service Latvia. http://www.vmnvd.gov.lv.

26. OECD database. http://stats.oecd.org/ (22.03.2017).

27. OECD (2015). *Health at a Glance 2015: OECD Indicators*. Paris: OECD Publishing. http://dx.doi.org/10.1787/health_glance-2015-en.

28. Official Statistics Portal of Statistics Lithuania. http://osp.stat.gov.lt/en.

29. Smailyte G, Aleknaviciene B, (2012). Incidence of prostate cancer in Lithuania after introduction of the Early Prostate Cancer Detection Programme. *Public Health* 126(12). https://www.researchgate.net/publication/221880288_Incidence_of_prostate_cancer_in_Lithuania_after_introduction_of_the_Early_Prostate_Cancer_Detection_Programme.

30. State Agency of Medicines of Latvia. http://www.zva.gov.lv/.

31. Statistical database of Statistics Estonia. http://www.stat.ee (28.04.2017).

32. *Statistical Yearbook of Health Care in Latvia 2015*. Riga: The Centre for Desease Prevention and Control of Latvia. https://spkc.gov.lv/en/statistics.

33. *Statistical Yearbook of Lithuania. 2016*. Vilnius: Statistics Lithuania. https://osp.stat.gov.lt/statistikos-leidiniu-katalogas?publication=24580.

34. UNAIDS (2015). GARPR. Global AIDS Response Progress Report 2015. Country-reports for Estonia, Latvia and Lithuania. http://www.unaids.org/en/dataanalysis/knowyourresponse/countryprogressreports/2015countries/.

35. WHO (2015). *Fact sheet: Tuberculosis in the WHO European Region*. Copenhagen: World Health Organization Regional Office for Europe. http://www.euro.who.int/__data/assets/pdf_file/0010/273169/WTBD_2015_FS_Final_ENG.pdf?ua=1.

36. WHO (2016). *Fact sheet: Blood safety and availability*. http://www.who.int/mediacentre/factsheets/fs279/en/ (12.05.2017).

37. Zimmermann, M-L. et al (2017). Vähihaigestumus 2009–2013 ja 20 aasta trendid Eestis. *Eesti Arst 2017; 96(1):11–20*. https://www.etis.ee/File/DownloadPublic/eef486f7-60aa-4910-adaf-3bb1efe4f34b?name=Zimmermannetal_EA_2017.pdf&type=application%2Fpdf.

WHERE TO OBTAIN STATISTICAL DATA AND INFORMATION ABOUT BALTIC COUNTRIES?

ESTONIA
Health statistics and health research database: www.tai.ee/tstua
Statistics Estonia: www.stat.ee

LATVIA
The Centre for Disease Prevention and Control: www.spkc.gov.lv
National Health Service: www.vmnvd.gov.lv
Central Statistical Bureau: www.csb.gov.lv

LITHUANIA
Institute of Hygiene: www.hi.lt
Statistics Lithuania: http://osp.stat.gov.lt

ISBN 978-9949-461-80-6 (PDF)