# Health of the population of Latvia, 2002-2012

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## ABBREVIATIONS

| | |
|---|---|
| **AB** | Antibiotics |
| **AEI** | Acute enteric infections |
| **HPV** | Human papillomavirus |
| **RTA** | Road traffic accidents |
| **DDD** | Defined daily dose |
| **ECDC** | European Centre for Disease Prevention and Control |
| **EU** | European Union (27 member countries) |
| **EU/EEA** | European Union and countries of European Economical Area |
| **ESPAD** | European School Survey Project on Alcohol and Other Drugs |
| **EUROSTAT** | Statistical Office of the European Union |
| **EU-SILC** | EU Statistics on Income and Living Conditions |
| **HBSC** | Health Behaviour Survey in School-aged Children in Latvia |
| **HCV** | Hepatitis C virus |
| **HIV** | Human immunodeficiency virus |
| **HFA-DB** | European Health for All database |
| **BMI** | Body mass index |
| **CoM** | Cabinet of Ministers |
| **MRSA** | Methicillin-resistant Staphylococcus aureus |
| **MR/XR-TB** | Multi-resistant/extensively resistant tuberculosis |
| **MR-TB** | Multi-resistant tuberculosis |
| **NHS** | National Health Service |
| **PHC** | Primary health care |
| **PYLL** | Potential years of life lost |
| **CVD** | Cardiovascular diseases |
| **CDPC** | Centre for Disease Prevention and Control of Latvia |
| **ICD** | International Classification of Diseases |
| **STI** | Sexually transmitted infections |
| **TB** | Tuberculosis |
| **TNM** | Classification of Malignant Tumours |
| **URL** | Uniform resource locator |
| **HAI** | Healthcare-associated infections |
| **VDEAK** | State Medical Commission for the Assessment of Health Condition and Working Ability |
| **SRS** | State Revenue Service |
| **VISUMS** | State Infectious Diseases Supervision and Monitoring System |
| **WHO** | World Health Organisation |

# 1. General health condition of the population

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In the beginning of 2012, there were two million inhabitants in Latvia, while 63% of these people are in the working age. 14% of inhabitants are children and teenagers who have not reached the working age, while more than 22% are inhabitants who have exceeded the working age (23% of them are men, 13% of them are women)[1]. Due to increase in the length of life, the ageing tendency of the population is being observed globaly. According to EU forecasts, the percentage of people in working age in Europe keeps decreasing, while the percentage of those people, who have exceeded the working age, keeps increasing[2]. The percentage of old people in Latvia is also increasing. This fact can cause important challenges in the social aspect, so it must be considered while planning development and costs of health promotion and healthcare activities in order to ensure more sustainable health condition and working ability of the population.

In previous years a progressive tendency has been observed with regard to people's health; however, public health and survivability rates in Latvia are not so encouraging in comparison to other EU countries. **Life expectancy at birth** is the main indicator for the evaluation of the population's health and social stability, as it can show the overall quality of life in the country, general health of the population, as well as the quality of healthcare. In 2011, the average life expectancy for newborns in Latvia has been 78.7 years for women and 68.8 for men (see Fig. 1). The average life expectancy for newborns in Latvia has been increasing, while life length differences between genders have been decreasing. Nevertheless, life expectancy at birth in Latvia is one of the lowest in Europe, especially for men.

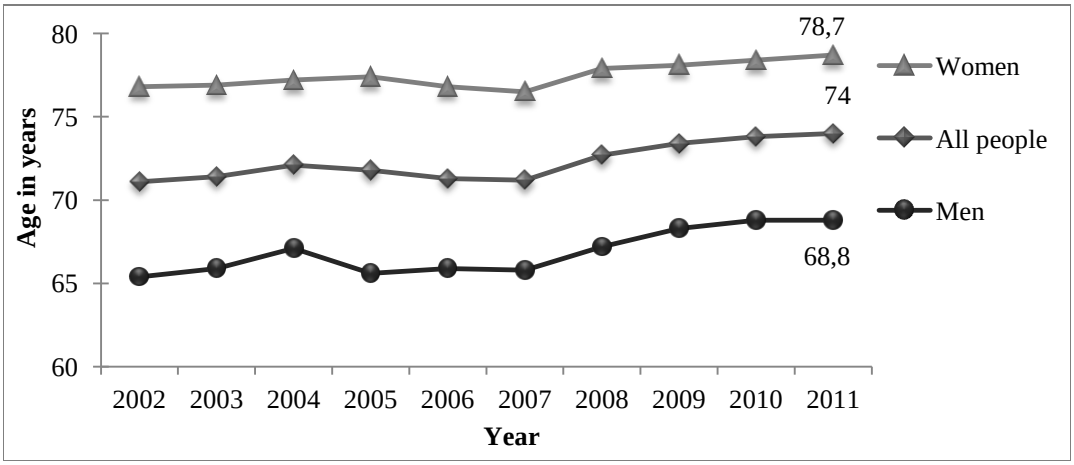


*Figure 1.* **Average life expectancy at birth, in years**
*Data source: Central Statistical Bureau of Latvia*

Owing to the development of medicine and other areas of science, it has become possible to significantly increase the lifespan. Currently it is much more important to preserve health and the quality of life. This aspect is characterised by **the healthy life years indicator (HLY).** It can provide the extensive characteristics of the length of life, as it shows the most qualitative years of life, for evaluation of which the mortality and morbidity rates, as well as the self-evaluation of people with regard to their health, are used (see Fig. 2).

[1] Data of the Central Statistical Bureau of Latvia
[2] *The 2012 Ageing Report: Economic and budgetary projections for the 27 EU Member States (2010-2060).* European Commission, Brussels, 2012, 472p.

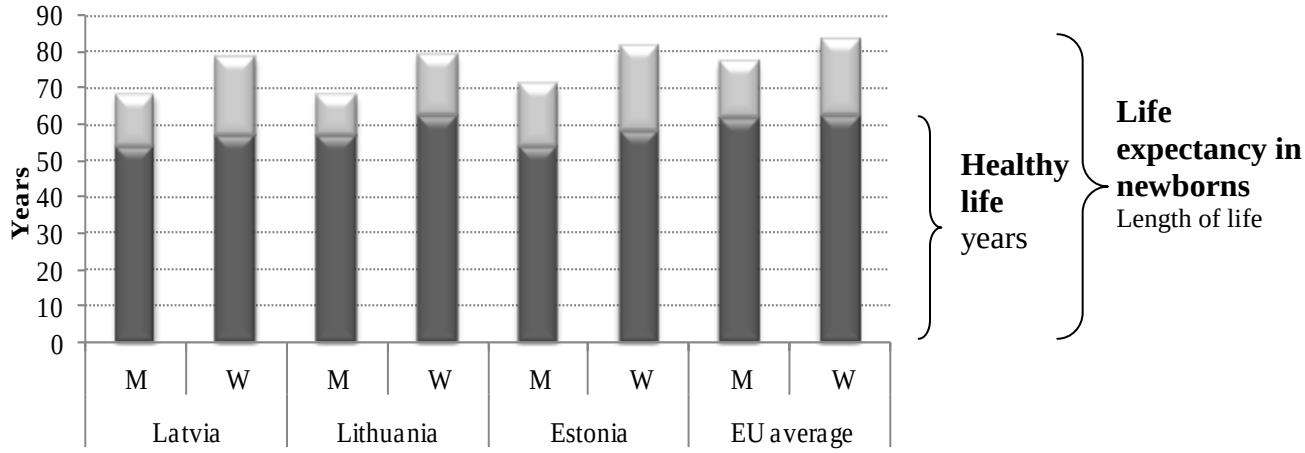


*Figure 2.* **Life expectancy for newborns, in years, by gender, 2011**
*Data source: EUROSTAT*

HLY for men in Latvia is one of the lowest in Europe. In Sweden, HLY for men exceeds 70 years. After calculating the percentage of healthy life years in relation to the total length of life, it can be concluded that men are ahead of women in this aspect: in 2011 this percentage was 78% for men, while it was 72% for women (for reference, 80% is the average rate for EU men, while 75% is the average rate for EU women)[1].

**Data of people's self-evaluation with regard to their health** are used for the calculation of the rate of healthy years of life, as these data are one of the most significant indicators for the evaluation of health. According to the data obtained in the study conducted in 2012, 53.5% of the respondents (in the age group 15-64) have evaluated their health as good or rather good, while men have provided such evaluation more often than women (58% and 50% respectively). Young people frequently have evaluated their health as good or quite good. In comparison with the data of the previous survey, the percentage of those respondents, who evaluate their health as rather bad, has increased, while the percentage of those people, who evaluate their health as good, has decreased.

Among those diseases, which have been diagnosed or treated during the last year (as it s reported by people themselves), vertebral diseases (14% of people), hypertension (12%), gastritis, gastric or duodenal ulcers, or chronic digestive system disorders (7%) are mentioned most frequently. In 2012, similar to the data obtained in previous surveys, the diagnoses mentioned in the survey have been reported by women more frequently than by men.

With regard to various complaints and symptoms reported during the last month, headaches (36%), backaches (32%) and painful joints (19%) are among the most frequently mentioned. Women have mentioned various symptoms and complaints more often than men. More than a half (63%) of inhabitants (in the age group 15-64) have used medicines (including vitamins and minerals) during the last week; women (74%) have used them more often than men (53%). Taking into account that pain is the most commonly reported symptom, medicines for relief of headache (28%) and other kinds of pain (26%) are used most frequently 24% of inhabitants have used vitamins and minerals[2].

[1] EUROSTAT data. URL: http://epp.eurostat.ec.europa.eu/portal/page/portal/statistics/search_database Viewed 09.07.2013.
[2] Health behaviour survey among Latvian adult population. The Centre for Disease Prevention and Control of Latvia

# 2. AVAILABILITY OF HEALTHCARE SERVICES

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Availability of healthcare is a many-sided concept, which includes financial availability, physical availability (accessibility), suitability of the healthcare system with regard to various situations and its ability to respond to different demands of the society[1]. This conception is depending on the organisation of healthcare, on resources (human resources, financing), on geographical distance and possibilities of transport; it is also determined by a possibility to choose a physician, by availability of information and by the quality of care, as well as by the socioeconomic status of patients. Availability can be more simply defined as 'a patient's ability to receive healthcare services in a place where such services are necessary, and in the particular time when it is necessary'[2]. It has been proven that limited availability of healthcare services can lead to increase of morbidity, disability and mortality rates[3]. Those people, who have reported various problems with regard to availability of healthcare services, have also more negatively evaluated their health condition[4].

The **number of outpatient visits** to medical doctors per one inhabitant is one of the main indicators with regard to the availability of healthcare services. Since 2002, this rate in Latvia has increased by 46% (from 4.6 in 2002 up to 6.7 in 2012) with a little decrease observed in 2009-2010 (the period of 'crisis') (see Fig. 3).

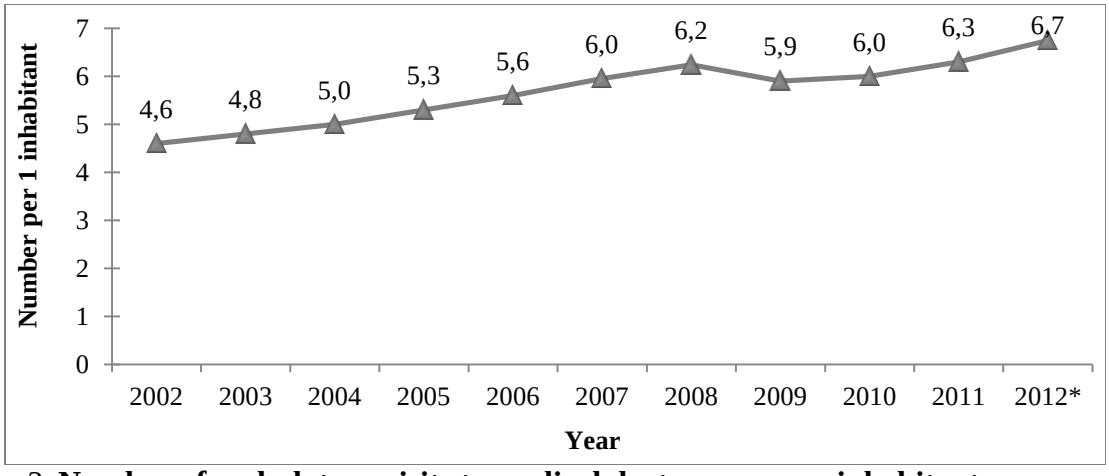


*Figure 3.* **Number of ambulatory visits to medical doctors, per one inhabitant**
*Data source: CDPC, the national statistical report 'The report concerning activities of healthcare institutions'*
* The rate for 2012 has been calculated based on the average number of inhabitants in 2011

[1] Peters D.H., Garg A., Bloom G., *et al*. *Poverty and access to health care in developing countries*. Annals of the New York Academy of Sciences, 2008, 1136, pp. 161-171.
[2] Šmate I., Kukliča S. The final report 'On the development of proposals in order to increase the role of municipalities for the improvement of primary health care' prepared by the MH working group, page 64
[3] Health at a Glance Europe 2012, Organisation for Economic Co-operation and Development (OECD) 2012, 154 p.
[4] Second European Quality of Life Survey. European Foundation for the Improvement of Living and Working Conditions, 2009, 107 p.

The number of visits to general practitioners is increasing accordingly. In 2011, averagely there have been 19 visits to one general practitioner registered. This rate has also increased by 46% during the last ten years (13 visits in 2002) [1].

Despite the mentioned increase of rates, there still is a part of inhabitants who do not visit physicians and do not undergo a preventive health control procedure at their general practitioners. In 2011, a preventive health examination has been performed only for 13% of those patients, who are registered at their general practitioners. Preventive examinations[2] constitute only 12.8% in the total structure of causes of visits to a primary healthcare specialist. This percentage has decreased within the last years (see Fig. 4).

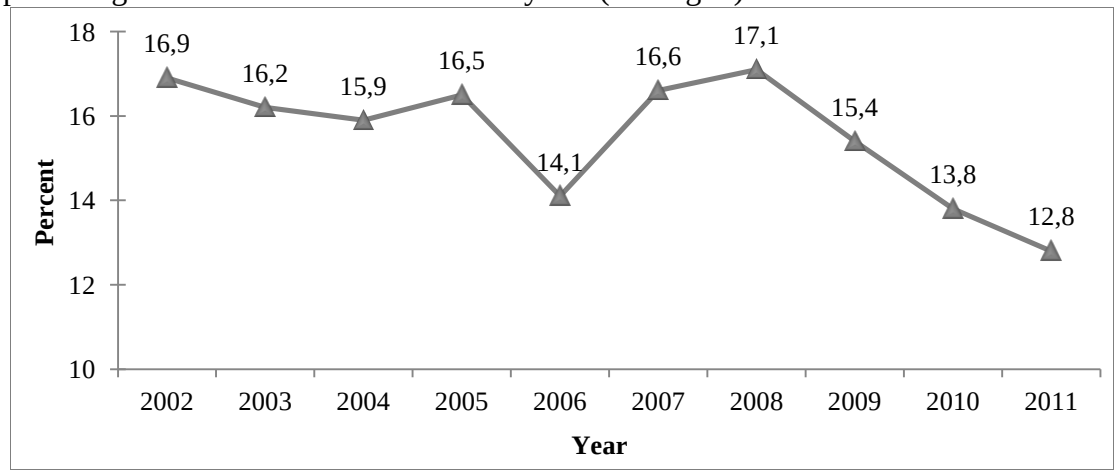


*Figure 4.* **Percentage of preventive health examinations (including vaccination and patronage) with regard to the total number of visits to primary healthcare specialists**
*Data source: Data of the NHS Management Information System*

In accordance with the survey data of 2012, 25% of inhabitants in the age group 15-64 (34.5% of men and 16.5% of women) have not visited a doctor during the previous year. Within the last year, 30% of inhabitants in the age of work ability (39.8% of men and 20.9% of women) have not visited a general practitioner, while 70% of people have done it. The higher percentage of those people, who had not visited their general practitioner, is observed in the age group 35-44. In comparison with the data of 2010, the rates with regard to visits to physicians have slightly increased[3].

**Availability of human resources** is one of the main indicators, which can characterise the total capacity of the national healthcare field. In 2012, there have been approximately 32 medical practitioners per 10,000 inhabitants (excluding dentists, including trainee doctors and residents), including 6.4 general practitioners, and 46 practising medical nurses per 10,000 inhabitants[4,5]. In accordance with the evaluation given by international experts, the number of medical nurses and primary healthcare specialists in Latvia is not sufficient[6].

Availability of healthcare services is decreased by insufficient number of physicians in rural areas and unbalanced distribution of such specialists in regions. For example, the number of medical practitioners in Riga per 10,000 is much higher in comparison with the average data for

[1] Data provided by the National Health Service
[2] Management Information System. National Health Service.
[3] The Health Behaviour Survey among Latvian Adult Population, The Centre for Disease Prevention and Control of Latvia of Latvia
[4] *Rates for the year 2012 have been calculated with the use of population data for the year 2011.*
[5] Data provided by The Centre for Disease Prevention and Control of Latvia
[6] Dubois K.A., McKee M., Nolte E. (ed.). *Human resources for health in Europe*. European Observatory on Health Systems and Policies Series, 2006, 276 p.

Latvia (see Fig. 5) or even in comparison with the average EU data (59 for Riga, 32 for Latvia, 33 for the EU). However, the number of medical practitioners in regions of Latvia can often be less than 20 per 10,000 inhabitants. The general indices do not change significantly over time, while with regard to distribution by regions there is a particular tendency showing that the relative number of doctors in Riga increases, while it decreases in other regions[1]. The relative number of general practitioners in Latvia is also lower than the average indices for the EU[2].

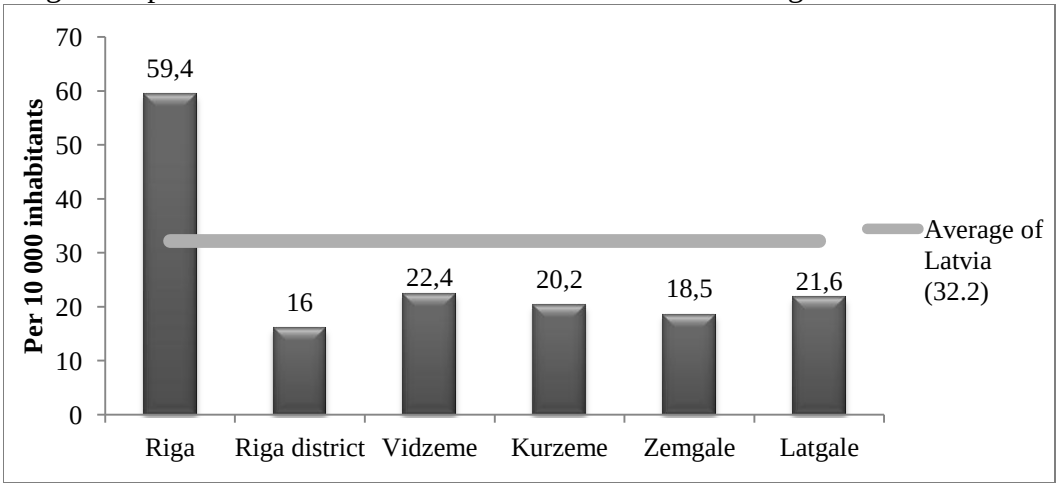


*Figure 5.* **Number of medical practitioners divided by statistic regions, per 10,000 inhabitants**

*Data source: Estimations performed by the CDPC using the Register of Medical Practitioners and Medical Support Staff (maintained by Health Inspectorate of Latvia), as well as the national statistic data from 'The report on personnel'.*

Increase in the average age of healthcare personnel is considered to be a significant problem. More than a half of practicing doctors are in the age above 50 (in 2011 - 53.2%), while 14.4% of them are at the age of ≥65 years. 40% of practicing medical nurses are at the age above 50[3]. Although there is no exact information available, within the last years the specialists' attention is being increasingly focused on the tendency for Latvian doctors (as well as for other healthcare specialists) to look for a work abroad. In 2011, the Latvian Medical Association has issued 203 internationally recognisable professional qualification certificates for physicians (in 2010 - 145; in 2009 - 220).

Insufficient availability of primary healthcare specialists, as well as the limited financing provided by the state for primary and secondary outpatient healthcare, can be a cause for the necessity of long-time waiting in the queues for medical services. This situation, in its turn, can result in the risk of delayed diagnostics and treatment.

In case if evaluation of the availability of healthcare services is performed based on the opinion of inhabitants, the aspect of **limited** financial **availability** is marked as the most important problem.

According to the EU-SILC data of 2011, 22% of inhabitants (in the age group 16+) have not visited any medical specialist within the last year (except for a dentist), although they had *a necessity to undergo medical examination or treatment*. The percentage of such people has increased over time (in comparison with 19% in 2008).

Among the main reasons, why inhabitants had not visited physicians (although it was necessary for them), the lack of money is mentioned in 65% of cases; an intention to wait for

[1] Data provided by The Centre for Disease Prevention and Control of Latvia of Latvia

[2] Organisation for Economic Co-operation and Development. "Practising Physicians", in *Health at a Glance: Europe 2010*, OECD 2010; 4p.http://dx.doi.org/10.1787/9789264090316-29-en Viewed 05.07.2013.

[3] Data provided by The Centre for Disease Prevention and Control of Latvia of Latvia

some time (until they feel better) is mentioned in 14% of cases, while a lack of time (due to work conditions or due to necessity to care for children or for another person) is mentioned in 7% of cases. The long time of waiting in a queue is mentioned by 4% of inhabitants, while 3% of inhabitants have mentioned a long distance and a lack of transport (see Fig. 6).

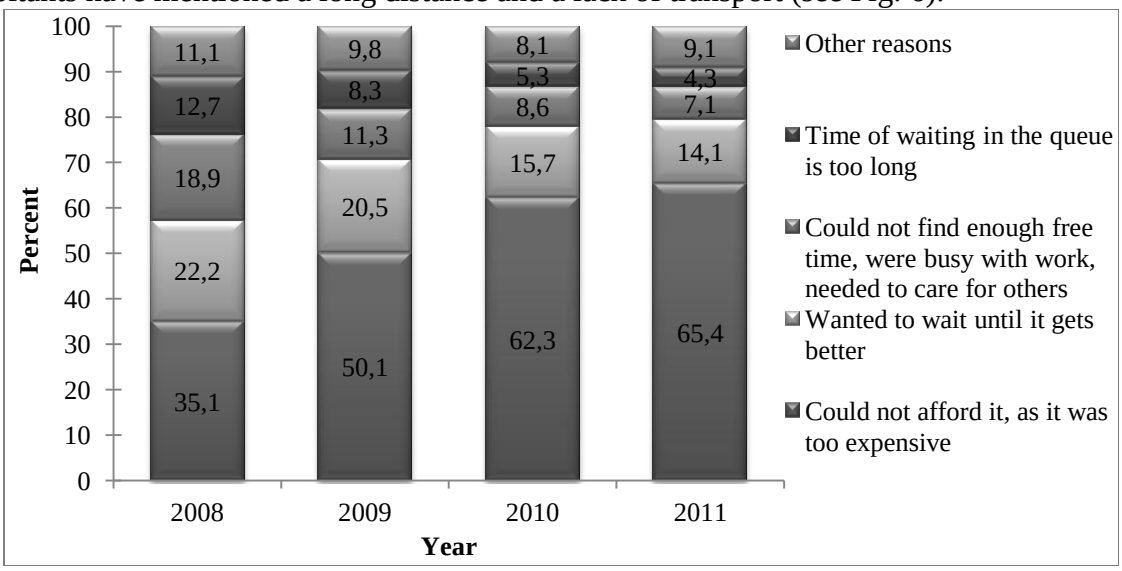


*Figure 6.* **Main reason, why people had not visited a doctor, for those patients, who had at least one case of necessity to undergo medical treatment or examination at a medical specialist (except for a dentist), *the percentage***
*Data source: Central Statistical Bureau of Latvia and EU-SILC study*

The percentage of those people, who were not able to afford a visit to a medical specialist in case of necessity, has rapidly increased over time. *The aspect of financial unavailability can be emphasised by the fact that* unemployed persons (33%) and retired persons (28%) had not visited physicians *in the majority of cases.* Employed persons have mentioned such reason in the minority of cases (18%)[1]. Unfortunately, this problem cannot be solved only by improvement of organisational issues for healthcare services. This aspect of inequality with regard to healthcare services should be considered also in the course of working on social inequality issues.

According to the data of another study for the year 2011, the expensiveness of healthcare services has been mentioned as the main obstacle preventing a person from visiting a medical specialist (50%). It must be mentioned that only 31% of people have reported that they immediately visit a doctor in case of necessity[2].

[1] The research 'Income and life conditions in Latvia' (EU-SILC), the Central Statistical Bureau of Latvia
[2] Healthcare. DNB barometer No. 34, 2011, page 31

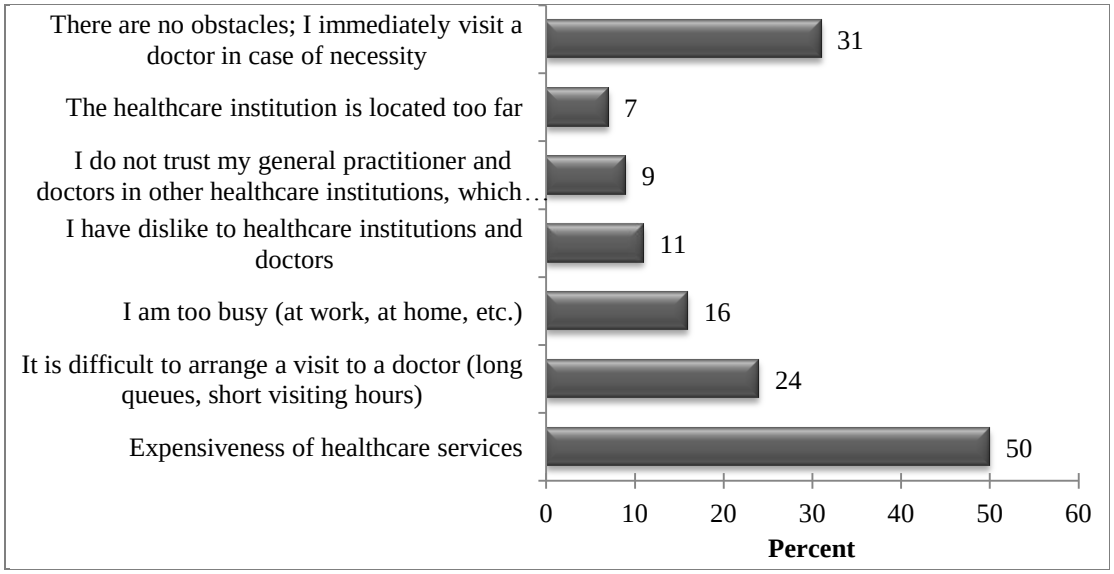


*Figure 7.* **Responses provided to a question 'Do you have any obstacles, which can prevent you from visiting a doctor in case of necessity', in percentage**
*Data source: DNB barometer No. 34 'Healthcare services', 2011*

General practitioners' services are one of the most important healthcare services, which are financed by the state, as well as by municipalities. The amount of patient payment for a visit to a general practitioner is LVL 1.00. There are also particular categories of patients who are fully or partially released from this payment. A patient payment in such amount is not a significant obstacle for non-released categories of patients to prevent them from visiting a general practitioner. **Home visits** are one of a general practitioners' services with a limited financial availability. Prices for home visits are varying in the range from LVL 2.00 up to LVL 15.00. This is a reason why patients of various general practitioners have unequal possibilities to receive these services. In many cases patients choose to call the emergency medical aid service 'for free' instead of asking for a payable home visit[1]. Home visits constitute 5.1% of the total number of primary healthcare specialists' visits (in 2012) and number of them has slightly increased during the last years. This percentage is slightly varying in regions, as the highest rate is observed in Riga (5.6%), while the lowest rate (3.9%) is observed in Kurzeme region[2].

Limited accessibility of healthcare services is mostly affecting the rural population in the world. Availability of primary healthcare specialists is more limited in regions with lower density of population, as there can be too long distances to the healthcare centres, while rural people often have lower income. According to the EUROSTAT data, 39% of rural people and 29% of people living in cities have encountered difficulties related to accessibility of healthcare services (average EU indices are accordingly 28% and 12%)[3].

Availability and quality of healthcare services can be also characterised with regard to satisfaction reported by patients. According to the data obtained in 2008 from the survey on the people's satisfaction with the received healthcare services (for the age group 18-74), 29% of patients had encountered some problems related to receiving of healthcare services. Availability of physicians and long-time waiting in queues have been mentioned most frequently (reported by

[1] Šmate I., Kukliča S. The final report 'On the development of proposals in order to increase the role of municipalities for the improvement of primary health care' prepared by the MH working group, page 64
[2] The national statistical report 'The report concerning activities of healthcare institutions' The Centre for Disease Prevention and Control of Latvia
[3] Population density effects on living conditions. European Commission EUROSTAT, 2011. URL: http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Population_density_effects_on_living_conditions Viewed 30.05.2013.

55% of people who had encountered a problem). Expensiveness of services and medicines has been mentioned by 18%. According to the data obtained with regard to patients' satisfaction with a general practitioner's work, 35% of inhabitants (in the age group 18-74) have been completely satisfied, while 42% - rather satisfied[1].

The similar situation has been reflected by the data of another survey for the year 2010, when 72% of people (in the age group 15-64) had reported complete satisfaction with their general practitioner's work (see Fig. 8). [2].

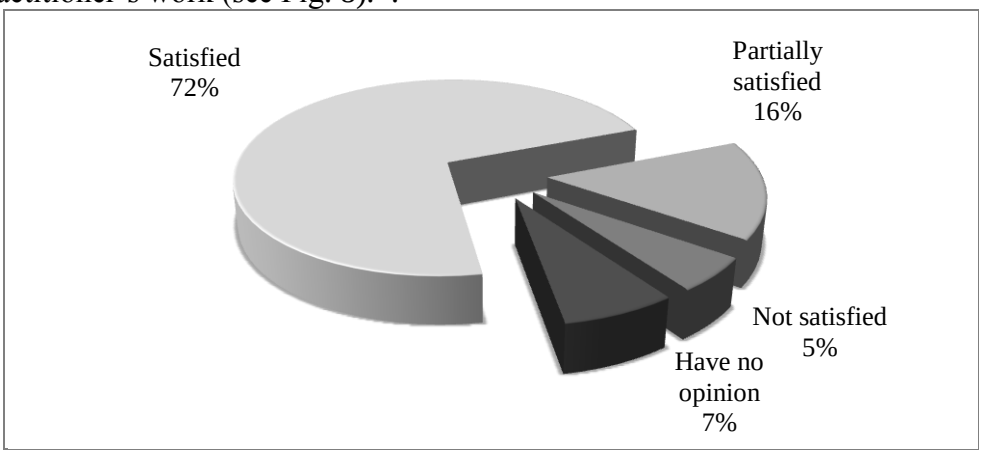


*Figure 8.* **Satisfaction of inhabitants (age group 15-64) with their general practitioner's work - the percentage with regard to the number of patients registered at their general practitioner's practice**
*Data source: CDPC, the Health behaviour survey among Latvian adult population 2010*

There are no significant differences with regard to particular places of residence. The inhabitants of Riga have most frequently reported that they have no certain opinion, while the percentage of those people, who are not satisfied with a general practitioner's (g.p.) work, is by one percent point higher in this group in comparison to other groups (see Fig. 9)[3].

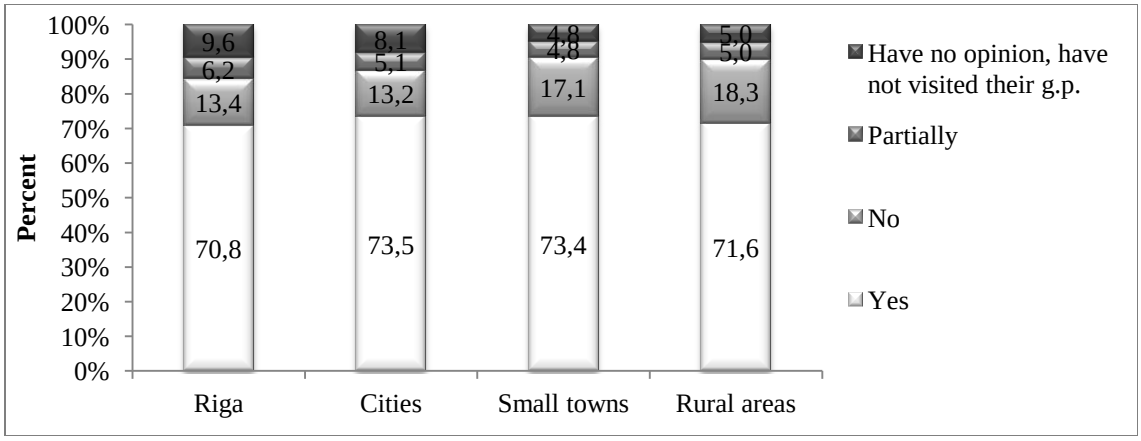


*Figure 9.* **Satisfaction of inhabitants (age group 15-64) with their general practitioner's work (divided by places of residence) – the percentage with regard to the number of patients registered at their general practitioner's practice**
*Data source: CDPC, the Health behaviour survey among Latvian adult population 2010*

[1] The research study 'Satisfaction of inhabitants with regard to health care services and possibilities to receive them' the State Agency for Compulsory Health Insurance, 2008, page 133
[2] Health behaviour survey among Latvian adult population. The Centre for Disease Prevention and Control of Latvia
[3] Health behaviour survey among Latvian adult population. The Centre for Disease Prevention and Control of Latvia

Patients have mentioned the following reasons as the main causes of dissatisfaction (reported by those patients, who are completely or partially dissatisfied): lack of understanding from a doctor's side - 36%, a doctor refuses to provide a referral to health examinations or to physicians - 33%. 21% of inhabitants have mentioned that 'doctor's absence in the workplace and inaccessibility' as a cause of their dissatisfaction. According to the data of similar survey performed in 2004, only 55% of patients are satisfied with their local doctor's/general practitioner's work, while 27% of patients (age group 15-64) are partially satisfied. In the year 2004, a refusal to provide a referral to health examinations (44%) and inaccessibility (31%) have been mentioned as the most frequently causes of dissatisfaction. Generally, satisfaction of patients with regard to services provided by general practitioners has increased.

According to the data obtained in 2010, the largest part of patients (age group 15-64) have not reported any problems with regard to receiving a referral to specialists (91%), or to obtaining prescriptions for medicines (96%), while accordingly 9% and 4% of patients have still reported such problems. In relation to questions concerning the information provided by general practitioners with regard to availability of state-financed services in other healthcare institutions, as well as concerning necessity and availability of prophylactic immunisation and examinations , and also with regard to treatment plans and methods, there are more than a half of respondents, who are satisfied with the above mentioned services, while approximately one fifth of patients cannot give a certain answer (men more often than women). There are 10%-19% of inhabitants (women more often than men) who are not satisfied with the quality of information provided by general practitioners (see Fig. 10) [1].

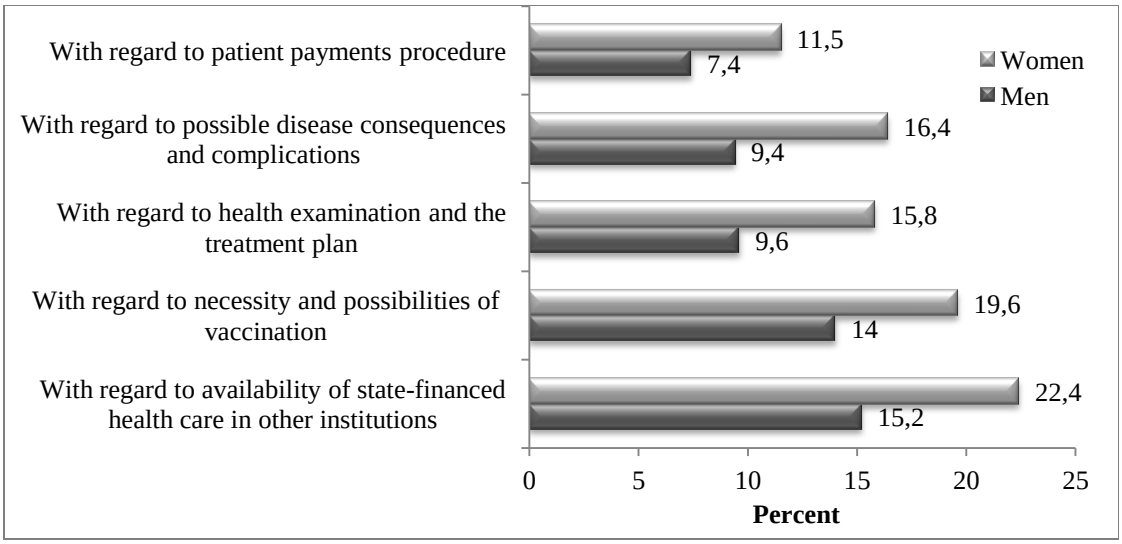


*Figure 10.* **Percentage of patients (age group 15-64) who are not satisfied with the information provided by general practitioners**

*Data source: CDPC, the Health behaviour survey among Latvian adult population 2010*

According to the data of "DNB Latvian barometer" survey for the year 2011, 81% of inhabitants (age group 18-74) have an opinion that the healthcare system in general does not correspond with the requirements of people, while only 14% of respondents think otherwise. According to the survey results, expensiveness of medicines and medical services (accordingly 72% and 67%) as well as insufficient financing provided by the state (64%)[2] have been considered as the main problems of the healthcare system.

[1] Health behaviour survey among Latvian adult population. The Centre for Disease Prevention and Control of Latvia of Latvia

[2] Health care. DNB barometer No. 34, 2011, page 31

In relation to the evaluation of various assertions with regard to general practitioners, such assertions as 'I am confident in my general practitioner'(47%), 'I would certainly turn to my family practitioner in case of any health problems' (41%) have been most frequently accepted by respondents. The respondents have most frequently reported that they visit their general practitioner mainly because of the fact that it is less expensive to visit a medical specialist if you have a referral (41%), while only 4% of respondents have reported that they usually turn to a medical specialist directly, without visiting their general practitioner. The same percentage of respondents (4%) have reported that they visit their general practitioner only because there are no other healthcare specialists available near to their location. 2% of respondents have reported that they have no general practitioner, while 3% of respondents are registered at a general practitioner, whose practice is located in other city or district[1].

Considering the current situation, the Ministry of Health has indicated availability and quality of healthcare services as the main priority of the healthcare field in 2013. Changes have been made in the procedure of organisation and financing of healthcare services in order to improve availability of healthcare, so that patients could access their general practitioners timely and receive referrals for the necessary health examinations. Owing to this, it will be possible to perform timely diagnostics of cancer, diabetes mellitus and cardiovascular diseases, as well as to ensure better quality of care for chronic patients[2]. Work on the 'Primary healthcare development plan for the years 2014-2016' has been already launched.

[1] Healthcare. DNB barometer No. 34, 2011, page 31

[2] Information provided at the homepage of the Ministry of Health. URL: http://www.vm.gov.lv/lv/aktualitates/preses_relizes/4032_prioritates_veselibas_nozare_2013gada__aprupes_pieejamiba_un Viewed 17.05.2013.

# 3. CARDIOVASCULAR DISEASES

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Cardiovascular diseases or circulatory system diseases (ICD-10 code I00-I99, hereinafter referred to as CVD) are the most prevalent causes of death in Latvia (55% of all death events)[1]. CVD are the most prevalent causes of hospitalisation, as in 2012, 66 thousand patients with CVD diagnoses received medical treatment in hospitals (17% of all hospitalised patients). The number of CVD patients subject to medical treatment in hospitals has been decreasing over time; however, this fact cannot be evaluated as the decrease of morbidity, but can rather be considered as the increased use of ambulatory healthcare services[2].

In 2012, the average duration of CVD-related treatment in hospitals was seven days, which is slightly more in comparison to 2011. Duration of medical treatment in hospitals increases proportionally to a patient's age, so the average duration of treatment is ~five days for patients in the age group 18-44, while for patients in the age group 60+ the average duration of treatment is seven days. Women are most frequently treated in hospitals due to CVD[3].

There is high percentage of cardiovascular diseases in the structure of outpatient visits - approximately ~17% of all diagnoses each year, so CVD are the second most prevalent diagnoses after respiratory system diseases. The importance of primary healthcare specialists in the CVD treatment process can be proven by the fact that in approximately 92% of those cases, when a CVD patient has visited a doctor, a patient has turned to a primary healthcare specialist, mainly - to a general practitioner[4]. In the year 2011, there have been more than 542 thousands of patients registered at primary healthcare specialists for the dynamic control with regard to CVD. Hypertensive diseases are the most common CVD cases - 55% (of registered and controlled patients) [5].

According to the data of the study for the year 2012 (based on responses provided by people), hypertension has been treated or diagnosed in 12% of inhabitants (age group 15-64) within the last year, while heart insufficiency has been treated or diagnosed in 3% of people; similar data have been obtained in 2010. Percentage of these diseases for women is two times more prevalent in comparison to men. 13% of respondents have used medicines for lowering high blood pressure during the last week. This rate has been increasing over time, in comparison to survey data for the previous years. There are 5% of respondents who have reported that they had never measured their blood pressure, while 22% of respondents had never measured cholesterol level in blood and 21% of respondents had never measured glucose level in blood. Even in the age group 55-64, each tenth respondent (15% of men and 7% of women) had never measured cholesterol level in blood[6].

Each year there are approximately 16 thousand people, whose death is caused by CVD. Since 2007, the percentage of premature death cases (before reaching the age of 64) has been decreasing each year (26% in the year 2006; 20% in the year 2012). The mortality rate has also

[1] Register of causes of death of Latvia. The Centre for Disease Prevention and Control of Latvia
[2] National statistical report 'The report concerning activities of healthcare institutions'. The Centre for Disease Prevention and Control of Latvia
[3] National statistical report 'The report concerning activities of healthcare institutions'. The Centre for Disease Prevention and Control of Latvia
[4] Data provided by the National Health Service of Latvia
[5] The national statistical report 'The report concerning activities of healthcare institutions' The Centre for Disease Prevention and Control of Latvia
[6] Health Behaviour Survey among Latvian Adult Population, The Centre for Disease Prevention and Control of Latvia

decreased, while in 2012 it reached the lowest level in the last ten years - 155 per 100,000 of people in the age group below 64[1] (see Fig. 11).

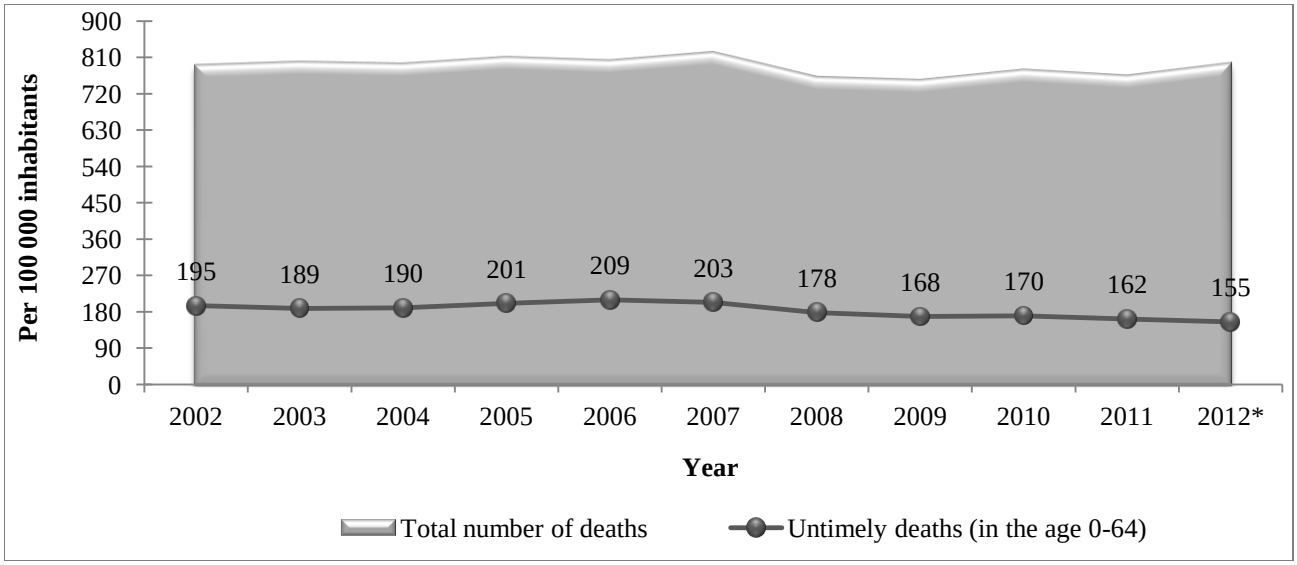


*Figure 11.* **Mortality caused by cardiovascular diseases, per 100,000 inhabitants (ICD-10 code I00-I99)**

*Data source: CDPC, The Register of causes of death among the inhabitants of Latvia*

* The rates for 2012 have been calculated based on the average number of inhabitants in 2011

Regardless of the observed decrease, the CVD-related untimely mortality rate (in the age below 64) in Latvia is three times higher than the average EU rate and is the highest for the Baltic States (see Fig. 12.)[2].

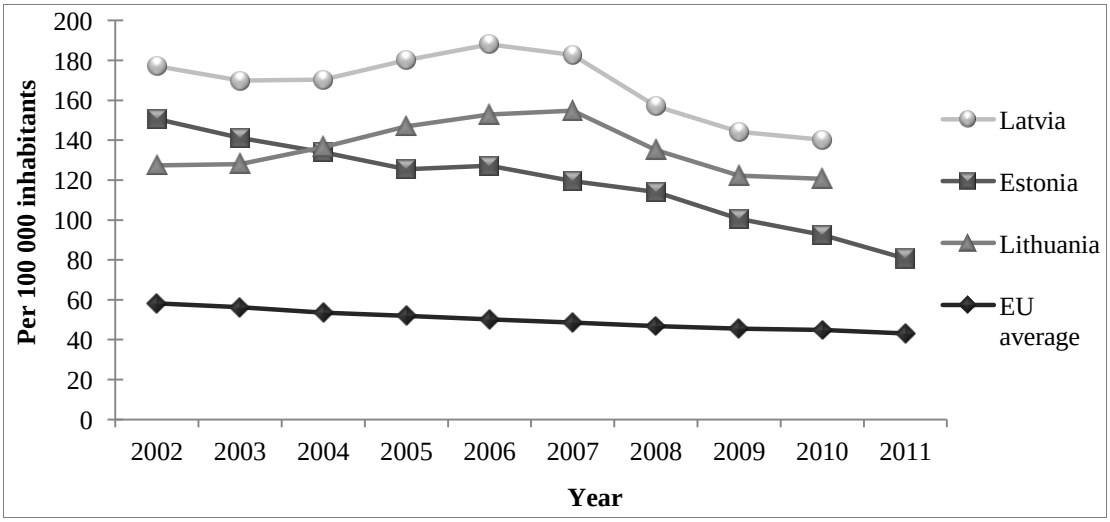


*Figure 12.* **Standardised CVD-related mortality in the EU, in the age group 0-64, per 100,000 inhabitants (ICD-10 code I00-I99)**

*Data source: WHO, European Health for All database*

The mortality rates are significantly different with regard to particular genders. The total CVD-related mortality rate (per 100,000 inhabitants) is relatively higher among women in comparison to the respective data for men (accordingly 844 and 731 in 2012). The untimely

[1] Register of causes of death among the inhabitants of Latvia. The Centre for Disease Prevention and Control of Latvia

[2] European Health for All Database (HFA-DB), WHO. URL: http://data.euro.who.int/hfadb/ Viewed 10.05.2013.

CVD-related mortality rate among men (in the age group below 64) is almost three times higher in comparison to women (accordingly 226 and 81 per 100,000 inhabitants in 2012) [1]. This rate differs among men and women also in the EU countries[2]. During the last six years, the untimely CVD-related mortality rate in Latvia has been decreasing for men, as well as for women.

In relation to particular age groups, the CVD-related mortality rate increases starting from the age of 35 (especially among men); as soon as people become older, the mortality rate becomes more rapid[3].

Various ischemic heart diseases, including myocardial infarction and stenocardia, are the main causes of death for the CVD group, as these diseases constitute up to 52% of all CVD causes. Cerebrovascular diseases (cerebral infarction, stroke, various cerebrovascular defects) are the second most significant group (see Fig. 13), while hypertensive diseases are in the third place.

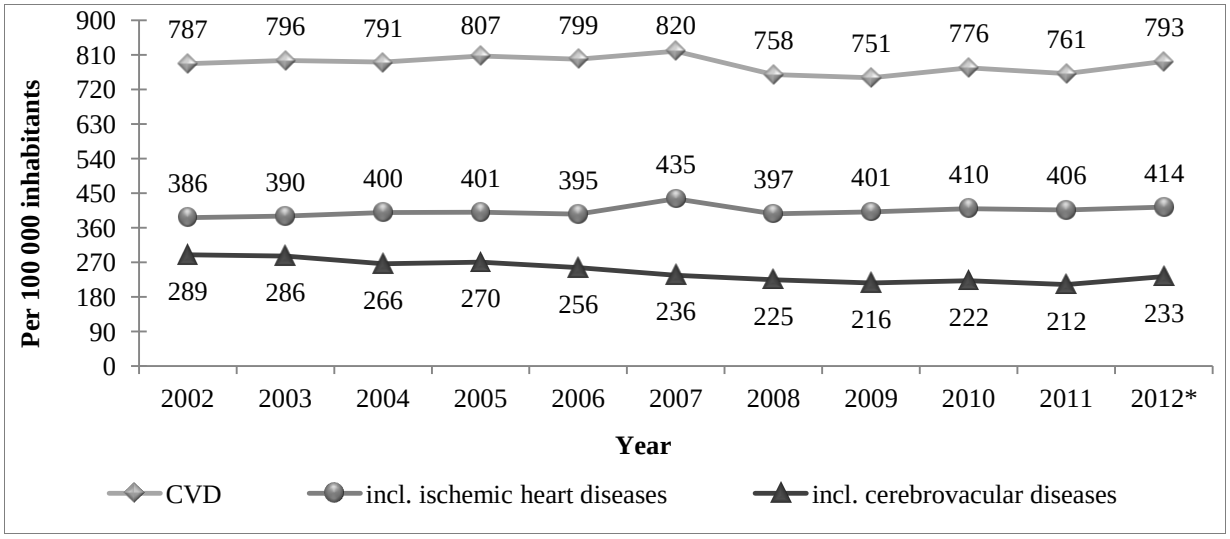


*Figure 13.* **Mortality caused by cardiovascular diseases, per 100,000 inhabitants (ICD-10 code I00-I99; I20-I25; I60-I69)**

*Data source: CDPC, the register of causes of death among the inhabitants of Latvia*

* The rates for 2012 have been calculated based on the average number of inhabitants in 2011

The mortality caused by ischemic heart diseases has remained relatively stable during the last ten years, while the mortality caused by cerebrovascular diseases has decreased (see Figure 13.), also in relation to the age group below 64. The mortality caused by cerebrovascular diseases in women is approximately 1.5 times higher in comparison to men, while in the age group below 64 it is almost two times higher for men in comparison to women[4].

[1] Register of causes of death among the inhabitants of Latvia; The Centre for Disease Prevention and Control of Latvia; Rates for the year 2012 have been calculated based on the population data in 2011.

[2] European Health for All Database (HFA-DB), WHO. URL: http://data.euro.who.int/hfadb/ Viewed 10.05.2013.

[3] Štāle M., Skrule J. Health of the population of Latvia. The Centre for Disease Prevention and Control of Latvia, Riga, 2012, page 113.

[4] Register of causes of death among the inhabitants of Latvia; The Centre for Disease Prevention and Control of Latvia

The prevalence of CVD can be significantly affected by **preventable risk factors**[1,2,3]:

☑ high blood pressure (>140/90 mmHg);
☑ high cholesterol level in blood (>5.2 mmol/l);
☑ overweight, obesity and unhealthy eating habits;
☑ lack of physical activities;
☑ smoking;
☑ excessive use of alcohol;
☑ stress;

Greater number of risk factors can cause a higher probability of CVD. Some of these risk factors are interrelated, for example, high blood pressure can be caused by obesity, smoking, use of alcohol and excessive consumption of salt, while a high cholesterol level can be caused by unhealthy food and smoking. The greatest part of cardiovascular diseases can be prevented by changing everyday life habits. It is also important to perform preventive health examinations and timely diagnostic of diseases, as well as to ensure timely treatment[4]. For this reason, a project of *Cardiovascular Health Improvement Action Plan for 2013-2015* was elaborated in 2012. Various activities are planned in order to ensure the prevention of CVD, to decrease a negative impact caused by risk factors to people's health, to improve the quality of diagnostics and treatment with the aim to decrease the CVD-related mortality.

[1] Ståhl T., Wismar M., Ollila E., *et al.* Health in All Policies Prospects and potentials. European Observatory on Health Systems and Policies, 2006, 299 p.
[2] Gigele I., Skrule J., Rozentāle G. Prevalence of non-infectious diseases. Circulatory system diseases. Public Health Agency, 2007, page 79.
[3] Ērglis A., Rozenbergs A., Dzērve V. 'Epidemiological cross-sectional study concerning risk factors related to cardiovascular and other non-infectious diseases among the inhabitants of Latvia', 1 report, The Scientific Institute of Cardiology of the University of Latvia, *Latvijas Ārsts*, October 2010.
[4] Mackay J., Mensah G.A., Mendis S., Greenlund K. (ed.) *The atlas of heart disease and stroke*. World Health Organisation, 2004, 112p.

# 4. MALIGNANT TUMOURS

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Malignant tumours (ICD-10 code C00-C97) are the second most prevalent cause of death (after cardiovascular diseases) among the inhabitants of Latvia (21% of all death events). In 2012, 6016 people[1] died due to malignant tumours.

Particular risk factors, such as high body mass index, insufficient consumption of fruits and vegetables, lack of physical activities, use of tobacco and alcohol, unsafe sexual life, air pollution, various manipulations performed in unsuitable environment and conditions (vaccination and medical injections, body piercing, tattooing, etc.) can significantly increase mortality caused by malignant tumours. According to the data provided by WHO, these risk factors have caused 35% of death cases related to malignant tumours. Some of the death cases, which are caused by certain malignant tumours, are related to particular and specific infectious diseases. For example, malignant tumours of stomach in 63% of cases are caused by the *Helicobacter pylori* infection, while malignant cervical tumours in almost 100% of cases are caused by human papillomavirus[2].

During the last ten years, mortality due to malignant tumours has increased by 19%, as 245 death cases have been observed per 100,000 inhabitants in 2002, while 292 death cases per 100,000 inhabitants have been observed in 2012 (see Fig. 14). [3].

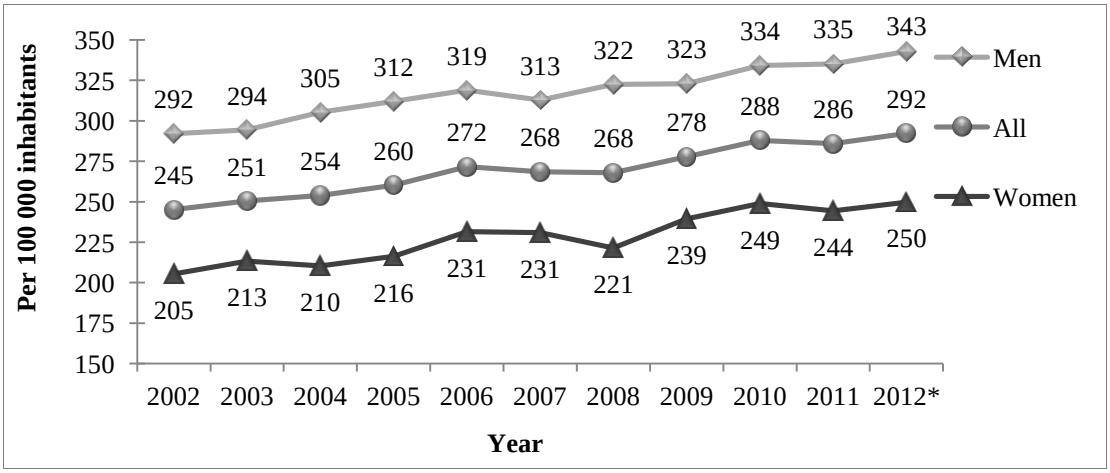


*Figure 14.* **Mortality caused by malignant tumours, per 100,000 inhabitants (ICD-10 code C00-C97)**

*Data source: CDPC, The register of causes of death among the inhabitants of Latvia*

* The rates for 2012 have been calculated based on the average number of inhabitants in 2011

Gradual increase of mortality can be explained with the increased morbidity (see Fig. 14), as well as by high prevalence of stage III and IV cancers. There were 34% primarily registered patients with malignant tumours in stage III and IV in 2012. However, according to the data obtained during the last years, the percentage of those patients, who are diagnosed with tumours in stage III and IV, has been slightly decreasing. Unfortunately, in 21% of all cases, which were registered in 2012, a stage of tumour was not determined during the disease diagnostic process or

[1] Register of causes of death among the inhabitants of Latvia; The Centre for Disease Prevention and Control of Latvia.
[2] Global health risks: Mortality and burden of disease attributable to selected major risks. WHO, 2009, p. 70.
[3] Register of causes of death among the inhabitants of Latvia; The Centre for Disease Prevention and Control of Latvia.

in the course of further treatment (except for localisation of malignant tumours, for which a stage is not determined according to the TNM classification). Lethality observed during the first year is very high for this group of patients, as the lethality rate was 45% in 2011 and most likely the malignant tumour diagnosis was determined at a late stage for the largest part of patients[1].

The rates with regard to patients included in the register of deceased patients with cancer, whose death is caused by malignant tumours, are analysed less often. In 2012, 610 patients (or 10.1% of all people who died of malignant tumours) were included in the register of deceased patients with cancer. These indices have decreased in comparison with 2011, when the percentage of such patients included in the Cancer register after death was 17.5% (1056 patients).

Malignant tumours of lungs are among the most prevalent causes of death in the group of malignant tumours. In 2008, 1.4 million people died of malignant tumours of lungs, while 71% of these people were smokers[2,3]. Malignant breast tumours, colorectal and prostate are among other prevalent malignant tumours[4]. In Latvia the structure of mortality with regard to malignant tumours is similar[5].

Malignant tumours of bronchus and lungs should be mentioned as the main cause of death in the group of malignant tumours with regard to men (25% of all death cases caused by malignant tumours among men). During the last ten years, particular tendencies of male mortality caused by tumours of lungs and bronchus have not been determined; however, a slight decrease has been observed within the last three years[6]. With regard to smoking as the main risk factor for this kind of tumours, it must be mentioned that the percentage of everyday smokers among men has decreased within the period from 1998 until 2008, while during the last years the percentage of smokers has increased again (see Article 8.1)[7].

Colorectal cancer and cancer straight intestine and stomach are accordingly the second and the third most prevalent cancer-related causes of mortality among men (see Fig. 15).

[1] The register of patients with Particular Diseases, Patients with Cancers. The Centre for Disease Prevention and Control of Latvia.
[2] Global health risks: Mortality and burden of disease attributable to selected major risks. WHO, 2009, 70 p.
[3] Cancer. WHO Fact sheet No.297, rew. January 2013. URL: http://www.who.int/mediacentre/factsheets/fs297/en/ Viewed 19.06.2013.
[4] Cancer mortality and morbidity. Situation and trend. WHO, URL: http://www.who.int/gho/ncd/mortality_morbidity/cancer_text/en Viewed 10.06.2013.
[5] Register of causes of death among the inhabitants of Latvia The Centre for Disease Prevention and Control of Latvia.
[6] The register of patients with Particular Diseases, Patients with Cancers. The Centre for Disease Prevention and Control of Latvia.
[7] Health behaviour survey among Latvian adult population. The Centre for Disease Prevention and Control of Latvia.

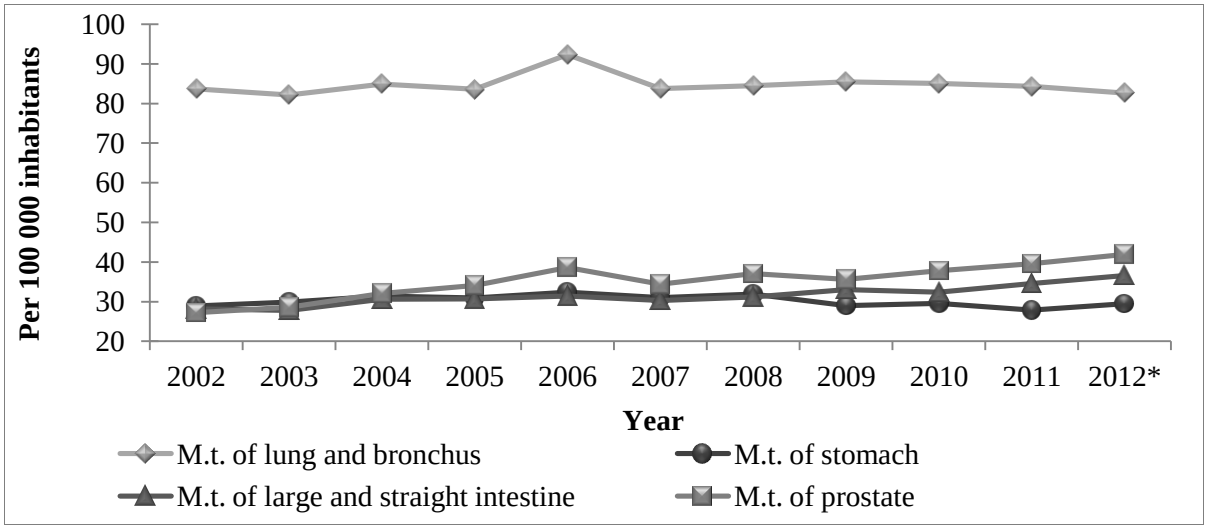


*Figure 15.* **Mortality caused by the most prevalent malignant tumours <u>among men</u>, per 100,000 inhabitants (ICD-10 code C34; C16; C18-20; C61)**

*Data source: CDPC, The register of causes of death among the inhabitants of Latvia*

* The rates for 2012 have been calculated based on the average number of inhabitants in 2011

Malignant breast tumours are the main cause of death in the group of malignant tumours with regard to women (15% of all death cases caused by malignant tumours among women). In 2012, a very high percentage of mortality due to malignant tumours of large and straight intestine was registered with regard to women. This year should be considered as an exception, as the mortality related to intestinal tumours has exceeded mortality rates related to malignant breast tumours. Malignant breast tumours are the main cause of premature death among women (in the age of 35-64). According to the tendency, the total mortality rate remains high among women with regard to malignant breast tumours (see Fig. 16). [1]. It can be explained with the increase of morbidity, as well as with the constantly high percentage of malignant tumours diagnosed in stage III and IV (approximately a third of female patients)[2].

[1] The Health Behaviour Survey among Latvian Adult Population. The Centre for Disease Prevention and Control of Latvia.

[2] The register of patients with Particular Diseases, Patients with Cancers. The Centre for Disease Prevention and Control of Latvia.

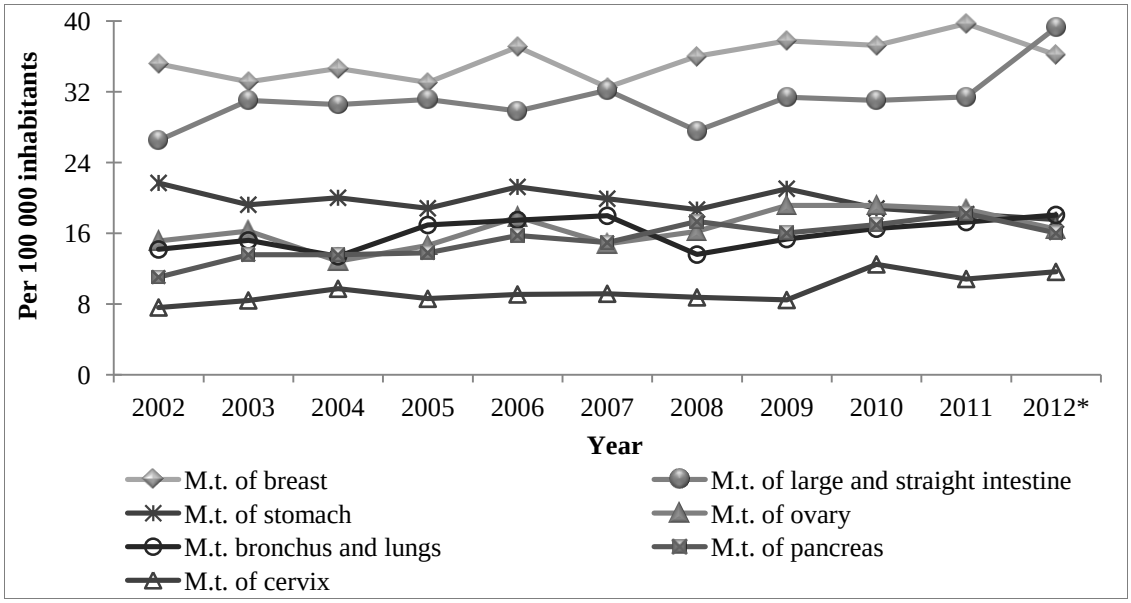


*Figure 16.* **Mortality caused by the most prevalent malignant tumours in women, per 100,000 inhabitants (ICD-10 code C50; C18-20; C16; C56; C34; C25; C53)**

*Data source: CDPC, The register of causes of death among the inhabitants of Latvia*

* The rates for 2012 have been calculated based on the average number of inhabitants in 2011

Life expectancy rates among women diagnosed with malignant tumours can be influenced by various factors, such as localisation of tumour, clinical morphological risk factors (patient's age, morphological variation of tumour, stage of disease, tumour differentiation level, reproductive factors, etc.), general health condition of patients, concomitant diseases, and possibility of specific treatment of cancer. The lowest life expectancy (five-year survival rate) is observed for patients with malignant tumours of pancreas, as there are only 5.6% of men and 2.8% of women (patients diagnosed in 2006), who have exceeded the five-year survival rate in 2011. The positive five-year survival rate (more than 50% of diagnosed patients have lived out five and more years after malignant tumour is diagnosed) is observed for the patients diagnosed with malignant tumours of prostate, malignant non-melanoma tumours of skin, melanoma for women, malignant breast tumours[1].

The morbidity rate with regard to malignant tumours increases in the entire Europe, including Latvia (see Fig. 17)[2]. This fact can be explained with population ageing (malignant tumours are mainly diagnosed in people of older age), as well as with high prevalence of risk factors[3].

[1] The register of patients with Particular Diseases, Patients with Cancers. The Centre for Disease Prevention and Control of Latvia.

[2] European Health for All Database (HFA-DB), WHO. URL: http://data.euro.who.int/hfadb/ Viewed 19.06.2013.

[3] Cancer. WHO Fact sheet No.297, rew. January 2013. URL: http://www.who.int/mediacentre/factsheets/fs297/en/ Viewed 19.06.2013.

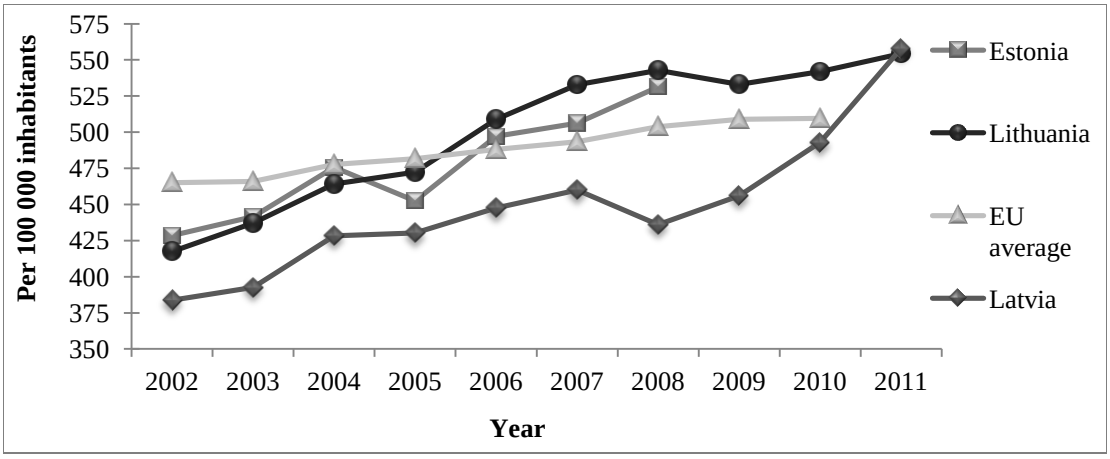


*Figure 17.* **Prevalence of malignant tumours in the EU countries, per 100,000 inhabitants (ICD-10 code C00-C97)**

*Data source: WHO, European Health for All database*

Relatively faster increase of the morbidity rate in Latvia most likely may be explained with improvement in diagnostics possibilities, as well as with the implementation of the national programme for early detection of cancer (screening) since 2009. In 2012, 11,508 of patients in Latvia, or 559 per 100,000 inhabitants, have been diagnosed with oncologic diseases for the first time in their life. Within the period from 2002 until 2012, the incidence of oncologic diseases has increased by ~65% (accordingly from 339 to 559 per 100,000 inhabitants) [1].

The increase of morbidity rate with regard to malignant tumours among women is observed already after reaching the age of 25, while the respective morbidity rate among men is observed after reaching the age of 40[2]. It can be explained with the fact that women are usually diagnosed with gender-specific tumours (malignant tumours of cervix and breast) and with such kinds of malignant tumours that are closely associated with lifestyle and environmental risk factors (for example, the effect of UV-radiation has been proven in case of melanoma). As it has been proven by research studies, the risk of having melanoma increases by 75%, if a person is regularly exposed to artificial UV-radiation (visiting of solariums) before reaching the age of 30[3]. Occurrence of this situation is more frequent among women. Sunburns experienced in childhood and growing age can be also dangerous[4].

In Latvia, men are most frequently diagnosed with malignant tumours of prostate, lungs and skin. During the last ten years, the morbidity rate of malignant tumours of prostate has almost doubled: from 59.5 patients in 2002 to 110.5 patients per 100,000 inhabitants in 2012 (see Fig. 18.). In this case, the increase of morbidity rate can be also explained with population ageing, as well as by the improvement of possibilities of diagnostics. In 70% of cases, this kind of tumour is diagnosed among men in the age group 65+ [5].

[1] The register of patients with Particular Diseases, Patients with Cancers. The Centre for Disease Prevention and Control of Latvia.

[2] The register of patients with Particular Diseases, Patients with Cancers. The Centre for Disease Prevention and Control of Latvia.

[3] Melanoma Research Foundation. *Melanoma risk factors*. URL: http://www.melanoma.org/learn-more/melanoma-101/melanoma-risk-factors. Viewed 10.06.2013.

[4] Azarjana K. Prognostic factors and risk factors for melanoma. Promotion study, Rīga Stradiņš University, Riga 2012, page 156

[5] The register of patients with Particular Diseases, Patients with Cancers. The Centre for Disease Prevention and Control of Latvia.

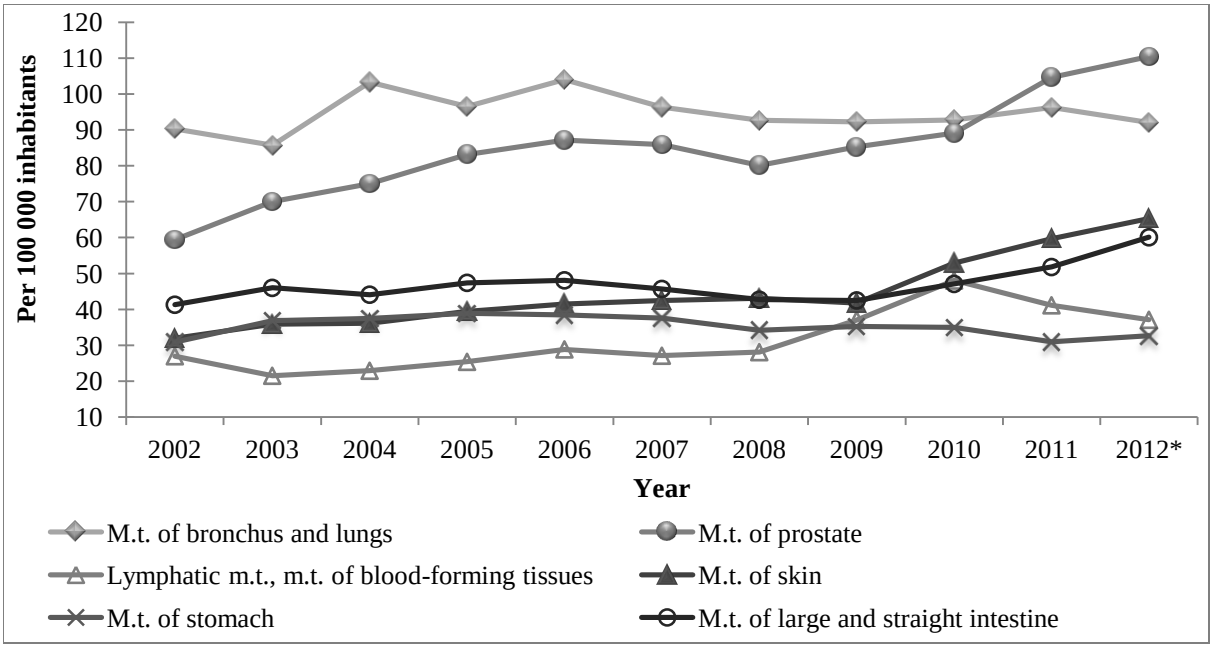


*Figure 18.* **Mortality caused by the most prevalent malignant tumours <u>among men</u>, per 100,000 inhabitants (ICD-10 code C34; C61; C81-96; C43-44; C16)**

*Data source: CDPC, The register of patients with Particular Diseases, Patients with Cancers*

* The rates for 2012 have been calculated based on the average number of inhabitants in 2011

<u>Women</u> are most frequently diagnosed with malignant breast tumours and skin (including melanomas), with the significant percentage of specific malignant tumours of reproductive organs and digestive system (see Fig. 19).

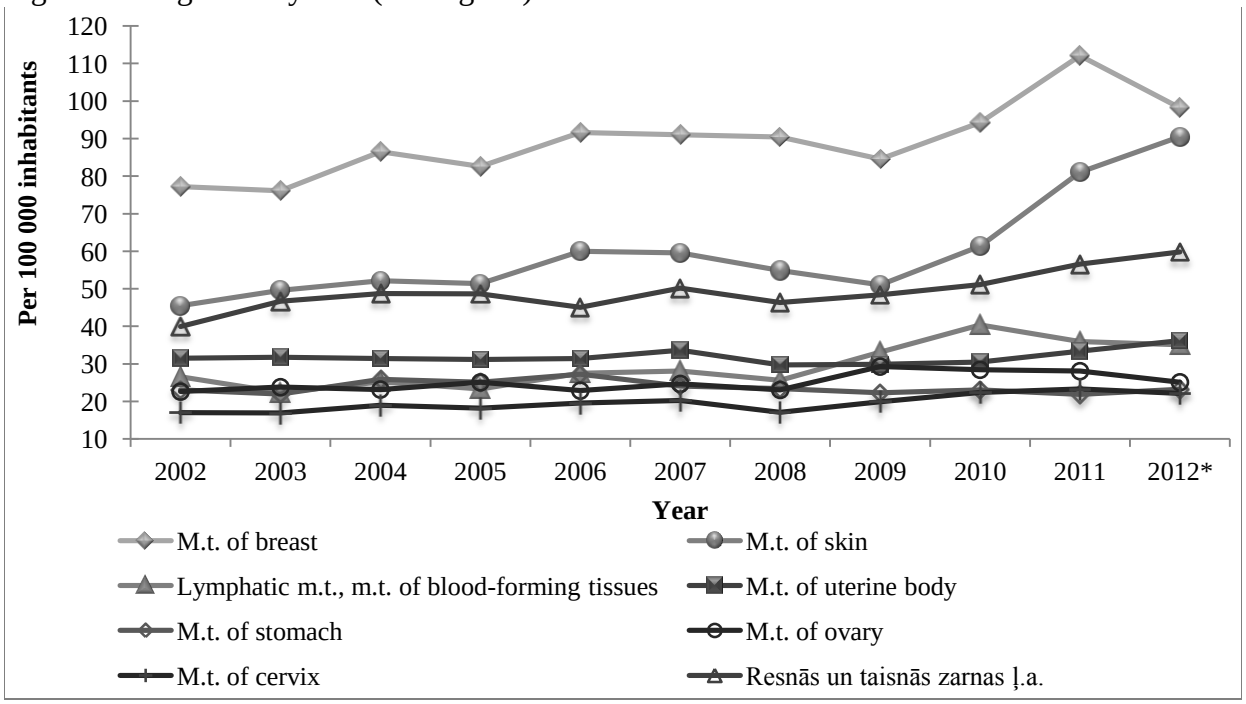


*Figure 19.* **Mortality caused by the most prevalent malignant tumours <u>among women</u>, per 100,000 inhabitants (ICD-10 code C50; C43-44; C81-96; C54; C16; C56; C53; C18-20)**

*Data source: CDPC, The register of patients with Particular Diseases, Patients with Cancers.*

* The rates for 2012 have been calculated based on the average number of inhabitants in 2011

Malignant breast tumours are most frequently diagnosed among women also in other EU countries. The morbidity rate (per 100,000)[1] is lower in the Baltic States in comparison to Scandinavia. This fact gives evidence of late diagnostics, which can be also evidenced by the percentage of diagnosed malignant breast tumours in stage III and IV, as it was 33.5% in 2011. Within the last ten years, a tendency of increased morbidity has been observed with regard to malignant breast tumours (see Fig. 19). It should be considered that malignant breast tumours are one of those oncologic diseases, which can also affect women of younger age, while especially fast increase of morbidity is observed in the age group 45-50 and older[2]. Increased attention is currently focused on inheritance factors for breast cancer (related to genetic mutation). The risk of breast cancer development increases up to 85% for women with genetic mutations, as it can be the cause of disease for 5%-10% of all breast cancer cases and for 25% of patients-women in the age group below 30[3,4].

Such oncologic reproductive system diseases, as malignant tumours of cervix, uterine body and ovary, are also frequently diagnosed among women. In comparison with malignant tumours with other localisation, malignant cervical tumours are diagnosed more frequently among young women, while it is also a significant cause of death for this group of patients. Considering this fact, it is especially important to ensure timely diagnostics and treatment. The highest morbidity rate (per 100,000 of women) with regard to malignant cervical tumours is observed in the age group 35-64. During the last years, the increased tendency of morbidity caused by malignant cervical tumours has been observed in Latvia (see Figure 11)[5]. Such tendency should be assessed negatively, because these tumours can be prevented in case of timely determination and treatment of pre-cancerous conditions.

The risk of having a malignant cervical tumour can be reduced by performing vaccination against human papillomavirus (HPV), considering that this virus is a cause of precancerous conditions for cervical cancer. Progression of these conditions can result in development of malignant tumours of cervix. The highest prevalence of HPV infection is observed among young women (age group below 25). The state-financed vaccination against HPV[6] for 12 years young girls has been started since 1 September 2010. In 2012, 5110 girls were vaccinated against this virus in accordance with the Immunisation Calendar, while the level of immunisation has slightly decreased in comparison with 2011. The coverage of the 1st vaccine inoculation against HPV was 58.7% in 2012, while the coverage of the 3rd inoculation was 53.4 %. In 2011, the coverage of inoculation was accordingly 61.4% and 60.6%[7].

Malignant tumours of large and straight intestine (colorectal tumour) are one of the most prevalent malignant tumours among both men and women in the age group 60+. The morbidity indices for the age group 70+ are significantly increasing for men, as well as for women. Malignant tumours with such localisation often are diagnosed at a later stage: 55% of malignant tumours are diagnosed in the stage III and IV, while the rates of mortality caused by these tumours are very high and show a tendency to increase over time, especially among women[8,9]. It

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[1] European Health for All Database (HFA-DB), WHO. URL: http://data.euro.who.int/hfadb/ Viewed 10.06.2013.
[2] The register of patients with Particular Diseases, Patients with Cancers. The Centre for Disease Prevention and Control of Latvia.
[3] Breastcancer.org (professional association), URL: http://www.breastcancer.org/risk/factors Viewed 10.06.2013.
[4] Mayo Foundation for Medical Education and Research, URL: http://www.mayoclinic.com/health/breast-cancer/DS00328/DSECTION=risk-factors Viewed 10.06.2013.
[5] The register of patients with Particular Diseases, Patients with Cancers. The Centre for Disease Prevention and Control of Latvia.
[6] Cabinet Regulation No. 330 of 26 September 2000, "Regulations on Immunisation".
[7] Data provided by the Centre for Disease Prevention and Control of Latvia.
[8] The Health Behaviour Survey among Latvian Adult Population. The Centre for Disease Prevention and Control of Latvia.
[9] The register of patients with Particular Diseases, Patients with Cancers. The Centre for Disease Prevention and Control of Latvia.

is necessary to pay more attention to a possibility to perform state-financed screening for intestinal cancer. Currently there are only 7% of the target population, who undergo such examinations within each year (7.6% in 2012)[1].

Experience of other countries shows that the mortality caused by malignant tumours of particular localisation (breast, cervix) can be decreased owing to implementation of the specific screening programmes[2,3], some of which are already implemented in Latvia (women of certain age receive an individual invitation to perform a state-financed screening examination).

In accordance with WHO data, mammography examinations can decrease the mortality caused by malignant breast tumours among women (in the age group 50-69) up to 35%[4]. Unfortunately, according to the obtained data, the coverage of screening is still not sufficient, although its gradual increasing (with 33.8% as the highest index reached in 2011) should be positively evaluated. In 2012, the responsiveness to breast cancer screening was 32.7% (in 2009 - 21%) [5].

Implementation of screening for malignant cervical tumours, with the aim to ensure timely determination and successful treatment of pre-cancerous conditions and early-stage tumours, can significantly decrease mortality caused by this kind of tumour[6,7.] Responsiveness to the implemented screening programme for malignant cervical tumours has increased in Latvia, as it was 34.5% in 2011 (in 2009 - 14.9%), while it was only 26.7% in 2012 and it still remains insufficient[8].

Malignant tumours are the second most significant cause of primary disability, which is determined to approximately three thousand of people each year, while the 1st group of disability (the highest severity) is determined in 90% cases. Disability is most frequently determined with regard to malignant breast tumours, prostate, bronchus and lungs[9].

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[1] Data provided by the National Health Service, URL: http://www.vmnvd.gov.lv/lv/469-veselibas-aprupes-pakalpojumi/veza-savlaicigas-atklasanas-programma/626-veza-savlaicigas-atklasanas-programmas-rezultati Viewed 19.06.2013.

[2] Council Recommendation on cancer screening. Commission of the European Communities. Brussels, 5.5.2003 COM(2003) 230 final 2003/0093 (CNS) **(P***ublished in OV C 87E, 7.4.2004, 263/269).*

[3] National Cancer Control Programmes. Policies and managerial guidelines, 2nd Edition. World Health Organisation, 2002, 203 p.

[4] Oncologic diseases control program for the years 2009-2015. Approved with the resolution No. 48 issued by the Cabinet of Ministers on 09.01.2009.

[5] Data provided by the National Health Service, URL: http://www.vmnvd.gov.lv/lv/469-veselibas-aprupes-pakalpojumi/veza-savlaicigas-atklasanas-programma/626-veza-savlaicigas-atklasanas-programmas-rezultati Viewed 19.06.2013.

[6] Council Recommendation on cancer screening. Commission of the European Communities. Brussels, 5.5.2003 COM(2003) 230 final 2003/0093 (CNS) **(P***ublished in OV C 87E, 7.4.2004, 263/269)*

[7] National Cancer Control Programmes. Policies and managerial guidelines, 2nd Edition. World Health Organisation, 2002, 203 p.

[8] Data provided by the National Health Service, URL: http://www.vmnvd.gov.lv/lv/469-veselibas-aprupes-pakalpojumi/veza-savlaicigas-atklasanas-programma/626-veza-savlaicigas-atklasanas-programmas-rezultati Viewed 19.06.2013.

[9] Data provided by State Medical Commission for the Assessment of Health Condition and Working Ability.

# 5. EXTERNAL CAUSES OF DEATH AND TRAUMATISM

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External causes of mortality (ICD-10 code V01-Y89) are one of the three main groups of causes of death for the population, after CVD and malignant tumours. Suicides are the most prevalent external causes of mortality (for detailed information see Article 5). Such situation is observed in Latvia, as well as in the EU countries[1]. Road traffic accidents are the second most prevalent external cause of mortality[2]. Alternatively to other causes of mortality related to bad health condition or premature death, the external causes of mortality can be prevented in the majority of cases.

The number of those people, who died due to external causes of mortality, gives evidence of high prevalence of traumatism in the population, considering the fact that the available statistical data show only a part of the actual scope of this problem (see Fig. 20).

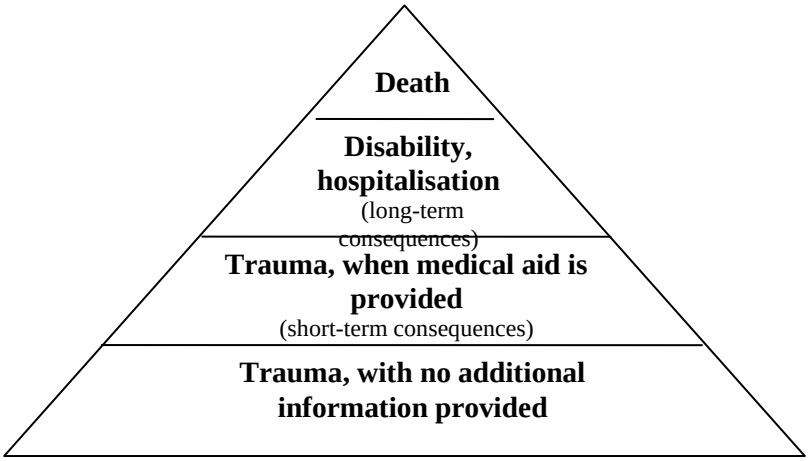


*Figure 20.* **Information with regard to traumatism**
*Data source: Skrule J., Rozentāle G., Gigele I. Injuries and external causes of death among children and young people. Public Health Agency, 2007*

The mortality rate with regard to external causes of death is approximately two times higher in Latvia in comparison with the average EU data (see Fig. 21.). These rates are very different in the EU countries - from 19 cases in Malta to more than 113 cases per 100,000 inhabitants in Lithuania. Within the last ten years, these rates have been decreasing in Latvia, as well as in the EU countries[3].

[1] European Health for All Database (HFA-DB), WHO. URL: http://data.euro.who.int/hfadb/ Viewed 28.05.2013.
[2] Registerof causes of death among the inhabitants of Latvia. The Centre for Disease Prevention and Control of Latvia.
[3] European Health for All Database (HFA-DB), WHO. URL: http://data.euro.who.int/hfadb/ Viewed 28.05.2013.

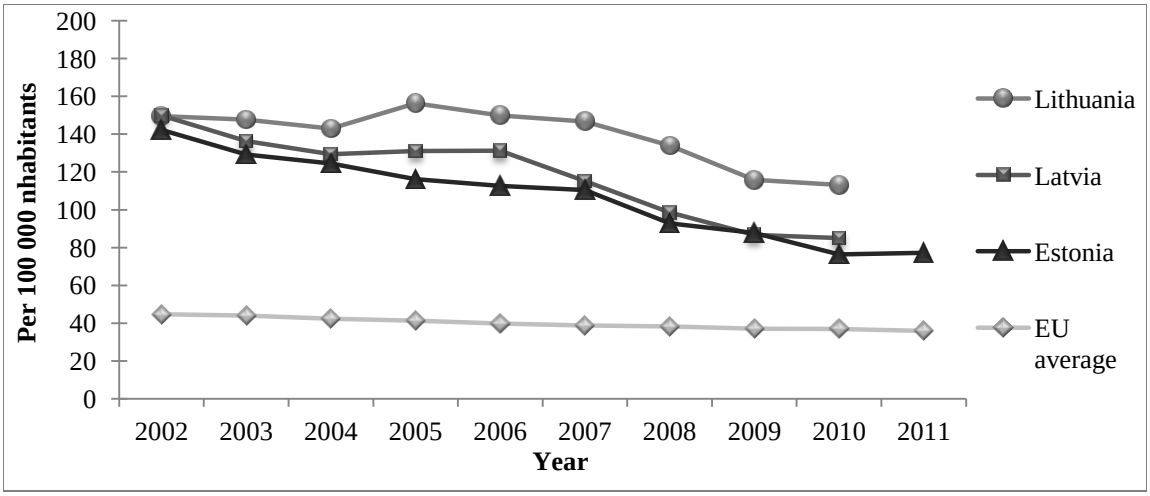


*Figure 21.* **Standardised mortality due to external causes in the EU countries, per 100,000 inhabitants (ICD-10 code VWXY)**

*Data source: WHO, European Health for All database*

Within the period from 2002 until 2011, the mortality due to external causes in Latvia has decreased approximately by one half. The mortality caused by road traffic accidents has decreased most rapidly (by 62%): from 26.1 in 2002 to 9.9 per 100,000 inhabitants in 2012. The mortality caused by accidental poisoning has also decreased over time by 2011 (by 67% within the period from 2006 until 2011). The mortality caused by violence has also decreased (by 49% within the period from 2002 until 2011)[1]. However, the increase of total mortality due to external causes has been observed in 2012 in comparison to 2011: the absolute number of deaths was 1886 in 2012 (in 2011 - 1541), while the relative number of deaths was 92 in 2012 per 100,000 inhabitants (in 2011 - 75). The mortality caused by accidental poisoning, violence, suicides and road traffic accidents has increased. The decrease tendency has been observed in 2012 with regard to the number of deaths caused by fire accidents and falling (see Fig. 22)[2].

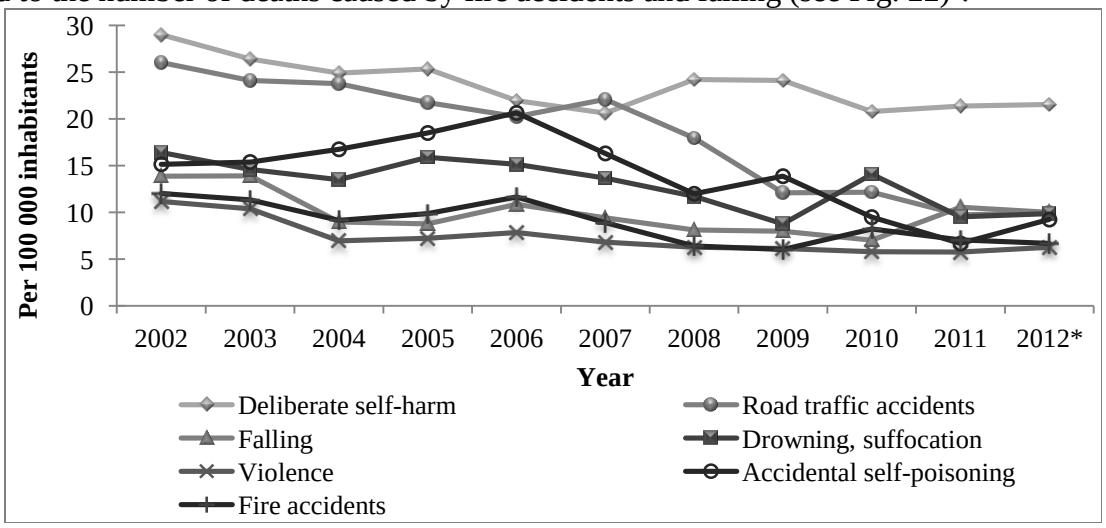


*Figure 22.* **Mortality due to external causes, per 100,000 inhabitants (ICD-10 code X60-X84; V01-V99; W00-W19+Y30,31; W65-W84+Y21; X85-Y09; X40-X49+Y10-19; X00-X09+Y26)**

*Data source: CDPC, The register of causes of death among the inhabitants of Latvia*

* The rates for 2012 have been calculated based on the average number of inhabitants in 2011

[1] Register of causes of death among the inhabitants of Latvia. The Centre for Disease Prevention and Control of Latvia.

[2] Register of causes of death among the inhabitants of Latvia. The Centre for Disease Prevention and Control of Latvia.

The distribution of external causes of mortality differs per age groups - drowning and suffocation are the main causes of death for children below the age of four, while self-harming is the main cause of death for people at the working age. For people of older age, deliberate self-harm and falling are the main causes of death. The mortality rate with regard to external causes of death is approximately four times higher among men in comparison to women[1].

The importance of this problem is increased not only due to high death rate, but also by the rate of the potential years of life lost (PYLL), which indicates to high percentage of premature deaths. External causes are in the first place in the structure of causes for PYLL - 27% of all PYLL causes (in the age group before 64). Mortality rates, as well as PYLL rates, give evidence of the main external causes of death. The highest mortality and PYLL rates are observed with regard to suicides. Road traffic accidents, drowning and suffocation are the next most significant external causes of death[2]. A considerable part (33%) of premature death cases are caused by the use of alcohol[3].

Considering the high percentage of mortality due to external causes of death, it must be concluded that the overall level of traumatism (which does not lead to death) is also very high in Latvia (see Fig. 22). In 2012, approximately 33 thousand patients have been treated in hospitals due to the consequences of traumas, poisoning and other external effects[4]. More than 18 thousand hospitalisation cases were registered in 2012, when patients were hospitalised due to traumas[5].

Traumas are typical for men[6,7], as well as traumatism-related disability in 2/3 of cases is determined for men. This fact can emphasise the importance of gender as a risk factor for traumas. Women most frequently experience traumas in the age group after 75[8].

The rates with regard to incidence of traumas (the number of traumatic cases, due to which patients are hospitalised, per 100,000 inhabitants) have decreased during the last years (since 2009)[9]. However, considering the fact that mortality due external causes has increased in 2012, it cannot be assumed that the situation is sustainably improving, because there is a lack of information with regard to incidence of the so-called 'non-severe traumatism' (when the injured person does not receive medical treatment at a hospital).

In accordance with the data of the register for the year 2012, most frequently people get traumas at home - in 50% of cases, while children at the age before four get traumas in 85% of cases. The transport area is the second most common place where people get traumas (publicly

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[1] Register of causes of death among the inhabitants of Latvia. The Centre for Disease Prevention and Control of Latvia.
[2] Skrule J. Potentially lost life years in Latvia for the year 2011, The Centre for Disease Prevention and Control of Latvia, Riga 2012, page 26.
[3] Skrule J. Potentially lost life years due to alcohol use. The Centre for Disease Prevention and Control of Latvia, 2013, http://www.spkc.gov.lv/aktualitates/490/lai-mazinatu-ar-alkohola-lietosanu-saistitos-naves-gadijumus-mediki-aicina-palielinat-alkohola-cenu-un-turpinat-ierobezot-reklamu (Viewed 10.06.2013)
[4] National statistical report 'The report concerning activities of hospitals' The Centre for Disease Prevention and Control of Latvia.
[5] Register of patients with Particular Diseases, Patients who have suffered injuries. The Centre for Disease Prevention and Control of Latvia.
[6] National statistical report 'The report concerning activities of hospitals'. The Centre for Disease Prevention and Control of Latvia.
[7] Register of patients with Particular Diseases, Patients who have suffered injuries. The Centre for Disease Prevention and Control of Latvia.
[8] Register of patients with Particular Diseases, Patients who have suffered injuries. The Centre for Disease Prevention and Control of Latvia.
[9] Register of patients with Particular Diseases, Patients who have suffered injuries. The Centre for Disease Prevention and Control of Latvia.

available highways, streets or roads, parking places) - 25% of cases. It is followed by sports and physical activities area (4.9%), outdoors (3.5%), schools (2.3%), and other places (see Fig. 23)[1].

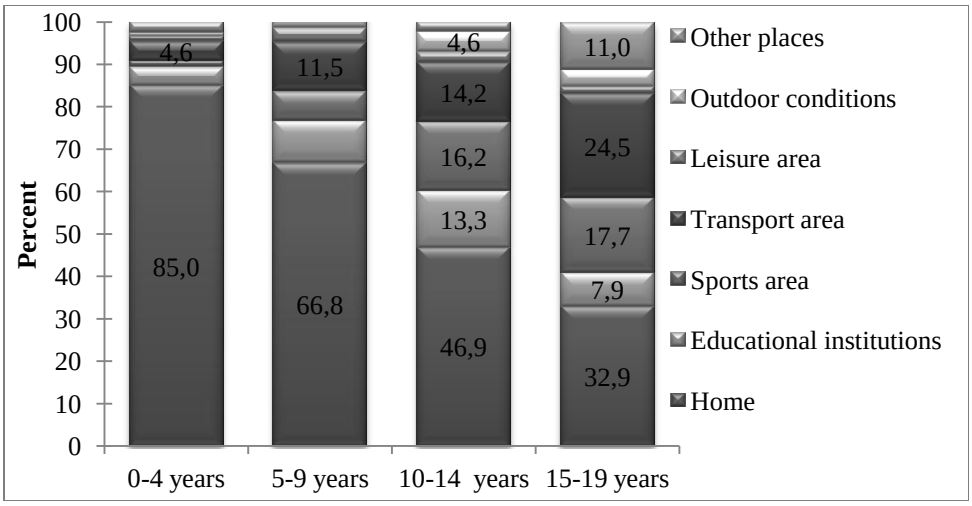


*Figure 23.* **Distribution of traumas experienced by children in particular places in the year 2012, the percentage**

*Data source: CDPC, The register of patients with Particular Diseases, Patients who have suffered injuries (data concerning only the cases reported by hospitals)*

Traumas can also result in disability. Disability due to the consequences of traumas can often be long-lasting and sometimes unrecoverable. Within the primary disability structure, in ~7% of cases disability is determined for adults due to injuries, poisoning and other consequences of external effects. Within the primary disability structure for children, disability due to the consequences of external effects is observed in approximately 2%-3% of cases (~20-30 children each year). A third part of all children below the age of 17, for whom primary disability due to the consequences of external effects is determined, are children below the age of six[2].

**Road traffic accidents** are a significant cause of mortality in Latvia (ICD 10 code V01-V99) (see Fig. 24). Latvia is one of those EU countries, where the most considerable mortality rate due to road traffic accidents is observed. This mortality rate is higher than in Latvia only in Lithuania, Poland, and Greece. Owing to various educational campaigns and administrative sanctions, the number of people who died in road traffic accidents has decreased almost three times since 2002, while in absolute numbers it decreased from 601 people in 2002 to 205 people in 2012[3]. There is still a high number of pedestrians who die in road traffic accidents — 62 in 2012, or 35% of all death cases due to road traffic accidents. Children also die in road traffic accidents each year (11 children in 2012) including children at the age below five.

According to the data provided by the Road Traffic Safety Directorate (CSDD), the number of children injured in road traffic accidents (per 100,000 inhabitants) varies over time. Children at the age below five most often get injured in RTA as passengers (71% in 2012), while during the primary school period children get injured in RTA as pedestrians (48% in 2012). Teenagers get injured in RTA not only as pedestrians or passengers, but at the age group after 15 they get injured already as drivers in a third of RTA (35% in 2012)[4].

[1] Register of patients with Particular Diseases, Patients who have suffered injuries. The Centre for Disease Prevention and Control of Latvia.
[2] Data provided by State Medical Commission for the Assessment of Health Condition and Working Ability.
[3] Registerof causes of death among the inhabitants of Latvia. The Centre for Disease Prevention and Control of Latvia.
[4] Data of the Road Traffic Safety Directorate.

Severe RTA are often caused by drivers under the influence of alcohol. The percentage of fatal road traffic accidents caused by drivers under the influence of alcohol has decreased over time, from 29% in 2002 to 10% (of all fatal RTA) in 2010, while in 2011 and 2012 the percentage of RTA caused by drivers under the influence of alcohol has increased again - up to 14% of all fatal road traffic accidents (in absolute numbers - accordingly by three and four victims more than in 2010)[1]. The number of fatal RTA varies over time, while the number of persons injured due to RTA varies accordingly (with regard to absolute and relative numbers based on the total number of inhabitants or vehicles).

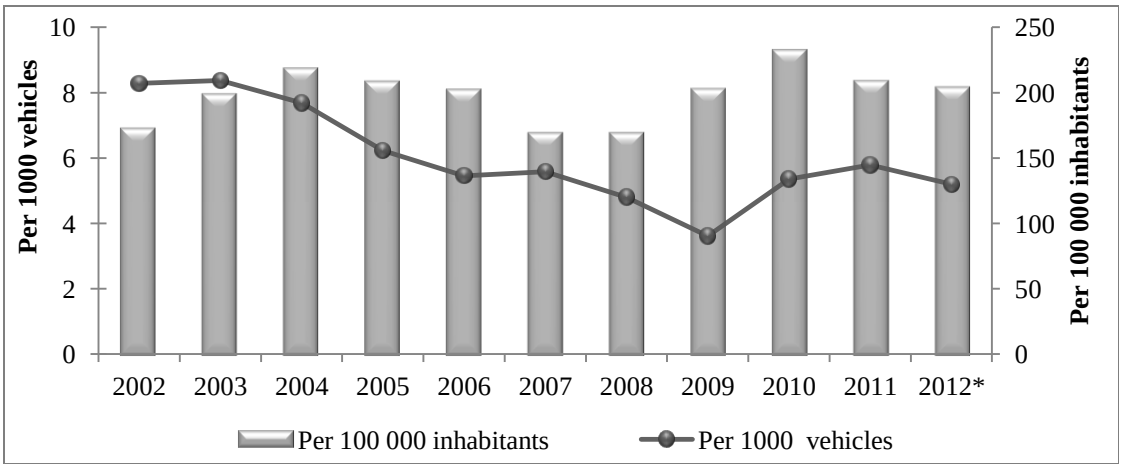


*Figure 24.* **Number of people injured due to road traffic accidents, per 100,000 inhabitants, per 100,000 registered vehicles**

*Data source: Data of the Road Traffic Safety Directorate*

* The index for 2012 has been calculated based on the average number of inhabitants for the year 2011

In 2012, on average 9.2 RTA were registered each day (with the outcome of injured persons and/or lethal outcome).

It is also important to mention high expansion of **violence** (ICD-10 code X85-Y09) in the society, considering that the available statistical and study data do not show the actual spread of violence in Latvia. These data can depict only a slight part of the problem (the same situation is observed with regard to traumatism in general). Regardless of the fact that violence-related mortality has been decreasing during the last 10 years (see Fig. 22), a little increase has been observed in 2012. Mortality with regard to violence is six times higher in Latvia in comparison to the average EU data[2]. Violence-related mortality data are almost three times higher among men in comparison to women. Analysis of the mortality rate (with regard to particular age groups) shows that the violence-related mortality among men rapidly increases after the age of 35, while the maximum rate is reached in the age group 50-59. Such age-related tendencies are not observed among women[3].

Unfortunately, children are also hospitalised each year due to injuries obtained as a result of violence (see Fig. 25), while there are one or two violent death cases registered each year with regard to children at the age below four. Only in 2012 (for the first time during the last ten years) no violent death cases have been registered with regard to children at the age below four, while

[1] Data of the Road Traffic Safety Directorate

[2] European Health for All Database (HFA-DB), WHO. URL: http://data.euro.who.int/hfadb/ Viewed 29.05.2013.

[3] Register of causes of death among the inhabitants of Latvia. The Centre for Disease Prevention and Control of Latvia

particular cases of children hospitalisation due to injuries caused by violence have not been registered as well[1,2].

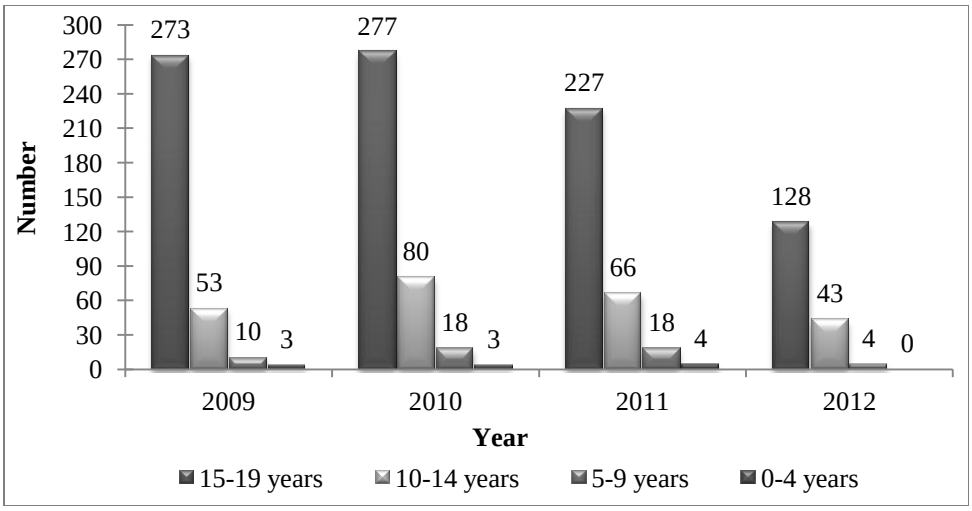


*Figure 25.* **Number of injuries caused to children due to violence (injuries resulting in hospitalisation), divided by age groups**

*Data source: CDPC, The register of patients with Particular Diseases, Patients who have suffered injuries (data concerning only the cases reported by hospitals)*

Generally, the number of hospitalisation cases with regard to violence-related injuries caused to children, as well as the number of children who have died due to violence, has been decreasing over time. However, it should be mentioned that these data show only the most severe cases of violence, while the actual expansion of violence is not known.

[1] The register of patients with Particular Diseases, Patients who have suffered injuries. The Centre for Disease Prevention and Control of Latvia.

[2] The register of causes of death among the inhabitants of Latvia. The Centre for Disease Prevention and Control of Latvia.

# 6. MENTAL HEALTH

Toms Pulmanis
*The Centre for Disease Prevention and Control of Latvia*

More than a third of European people suffer from mental disorders[1]. In 2011, 7.4%[2] of people in Latvia sought help due to mental and behavioural disorders; however, the actual prevalence of mental and behavioural disorders in the population can be even higher, especially taking into consideration the fact that Latvian society is not ready to be socially tolerant to people who suffer (or suffered) from mental disorders[3]. This can become an important obstacle preventing people from timely seeking help[4].

With regard to the dynamics of the morbidity data in the register of information provided by psychiatrists, it must be noted that the tendency of increase, which was observed during the last years, has stopped, as there has been decrease of morbidity observed both among men and women[5] (for a first time this year, after a long break) (see Fig. 26). Considering that changes observed during a particular year cannot reflect the general tendency, it is very important to perform monitoring of the situation in the future.

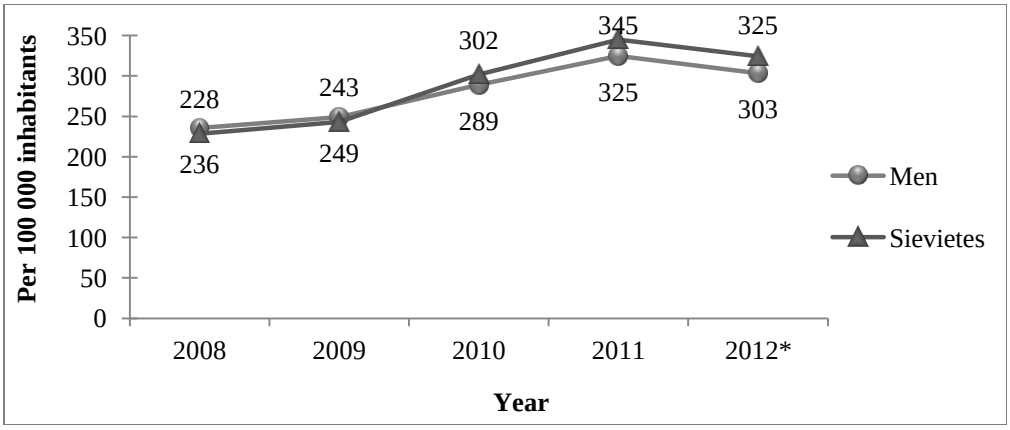


*Figure 26.* **Number of patients for whom mental and behavioural disorders are primarily diagnosed by psychiatrists, per 100,000 inhabitants (ICD code F00-F09; F20-F98)**
*Data source: CDPC, CDPC, The register of patients with particular diseases. Patients with mental disorders*
* The rates for 2012 have been calculated based on the average number of inhabitants in 2011

According to the register data, patients with organic mental disorders (41%) reach the range of psychiatrists' patients most frequently. These diagnoses are followed by neurotic, stress-related and somatoform disorders (19%) and mental development disorders (9%) (see Fig. 27). Similar proportion has been also observed in the previous years[6].

[1] Wittchen H.U., Jacobi F., Rehm J., *et al*. The size and burden of mental disorders and other disorders of the brain in Europe 2010. *Eur Neuropsychopharmacol*, 2011, Vol. 21, N. 9, pp. 655-679.
[2] Pulmanis T., Pelne A., Taube M. Mental health in Latvia in the year 2012. The Centre for Disease Prevention and Control of Latvia, 2012, page 84.
[3] Zārde I., Pulmane K., Villeruša A. Psychiatric stigma – the impact caused by gender, age, education and previous contacts to the tolerance ability with regard to social adoption of people with psychical diseases. RSU Scientific Conference for the year 2012. Theses. Riga, RSU, 2012.
[4] Pulmanis T. Promotion of mental welfare of the population – is this a challenge? *Current information with regard to addiction problems.* E-magazine. The Centre for Disease Prevention and Control of Latvia, Riga, 2013, page 16.
[5] The register of patients suffering from certain diseases, with regard to patients diagnosed with mental and behavioural disorders. The Centre for Disease Prevention and Control of Latvia.
[6] The register of patients with particular diseases. Patients with mental disorders. The Centre for Disease Prevention and Control of Latvia.

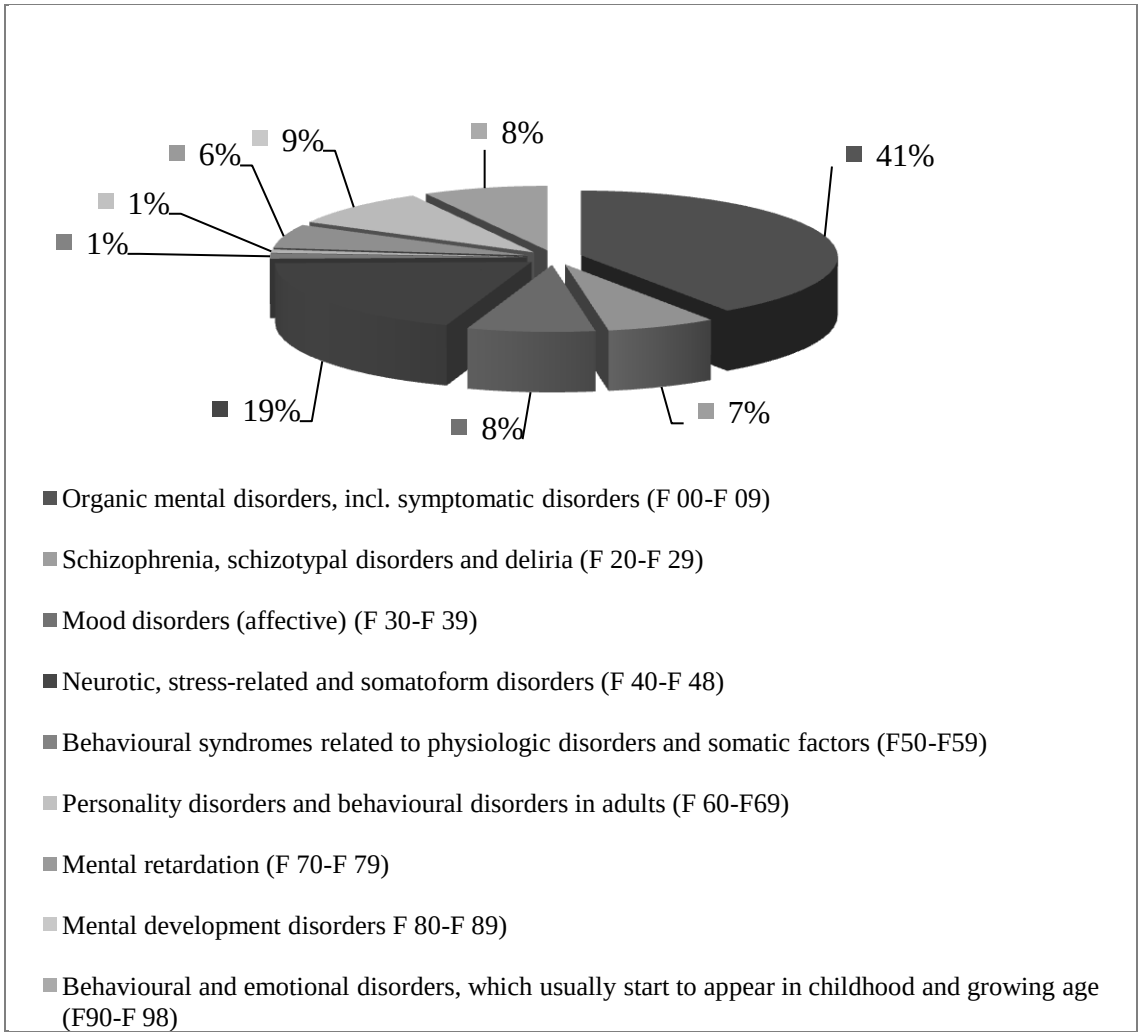


*Figure 27.* **Number of patients for whom mental and behavioural disorders are primarily diagnosed by psychiatrists in 2012**

*Data source: CDPC, The register of patients with particular diseases. Patients with mental disorders*

Patients with mental and behavioural disorders have not only a possibility to address a psychiatrist, but they can also turn to other healthcare specialists, for example, to a general practitioner, who can provide primary aid for the identification of mental disorders in the majority of cases. According to the obtained data, the number of outpatient visits to general practitioners with regard to mental and behavioural disorders has been increasing during the last years, while in 2012 the percentage of such visits remained at the level of the previous year[1] (see Fig. 28).

[1] Management Information System, National Health Service.

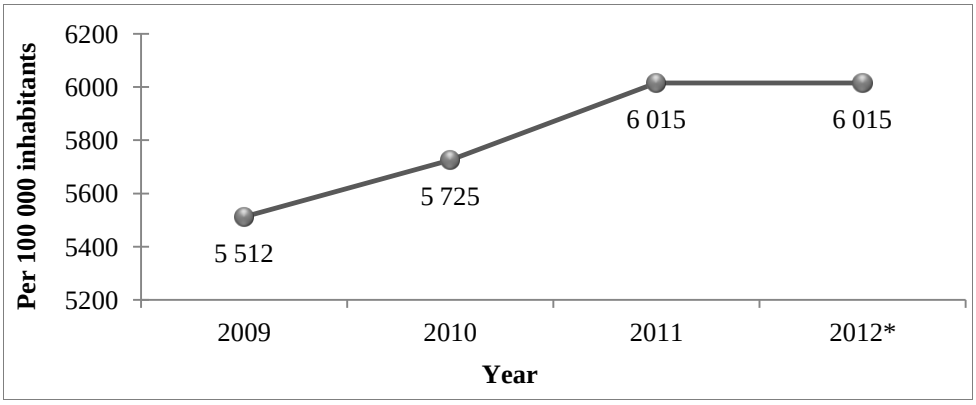


*Figure 28.* **Number of ambulatory visits to general practitioners due to mental and behavioural disorders, per 100,000 inhabitants, (ICD-10 code F00-F09; F20-F99)**

*Data source: NHS, Management Information System*

* The index for 2012 has been calculated based on the average number of inhabitants for the year 2011

The greatest part of all visits to general practitioners with regard to mental and behavioural disorders was associated with neurotic, stress-related and somatoform disorders (68%), these diagnoses are followed by affective mood disorders (8%) and organic mental disorders (6%)[1].

**Suicides** must be considered as one of the most significant public health problems in Latvia (ICD code X60-X84). According to the obtained data, suicide rates for Latvia are the third highest in the European Union and the tenth highest in the world[2,3]. Suicide-related mortality is in the fifth place among all causes of death in Latvia, while suicides still remain the main external cause of death[4]. In 2011, the greatest part of potentially lost life years (below the age of 64) in Latvia were lost due to external causes of death, while suicides are in the first place among these causes[5].

After significant increase of suicide rates, which was observed during the period of economic crisis, currently the incidence of suicides is evaluated as consistently high while the percentage of suicides among men is five times higher in comparison to women (see Fig. 29). In total 443 people in Latvia died due to suicide in 2012. With regard to age groups, the highest suicide-related mortality is observed in the age group 50-54[6].

[1] Management Information System. National Health Service.

[2] European Detailed Mortality Database (DMDB), WHO, URL:http://data.euro.who.int/dmdb/ Viewed 21.05.2013.

[3] Värnik P. Suicide in the world. *International Journal of Environmental Research and Public Health*, 2012, Vol. 9, No. 3, pp. 760-771.

[4] The register of causes of death among the inhabitants of Latvia. The Centre for Disease Prevention and Control of Latvia.

[5] Skrule J. Potentially lost life years in Latvia in the year 2011. Riga, CDPC, page 26.

[6] The register of causes of death among the inhabitants of Latvia. The Centre for Disease Prevention and Control of Latvia.

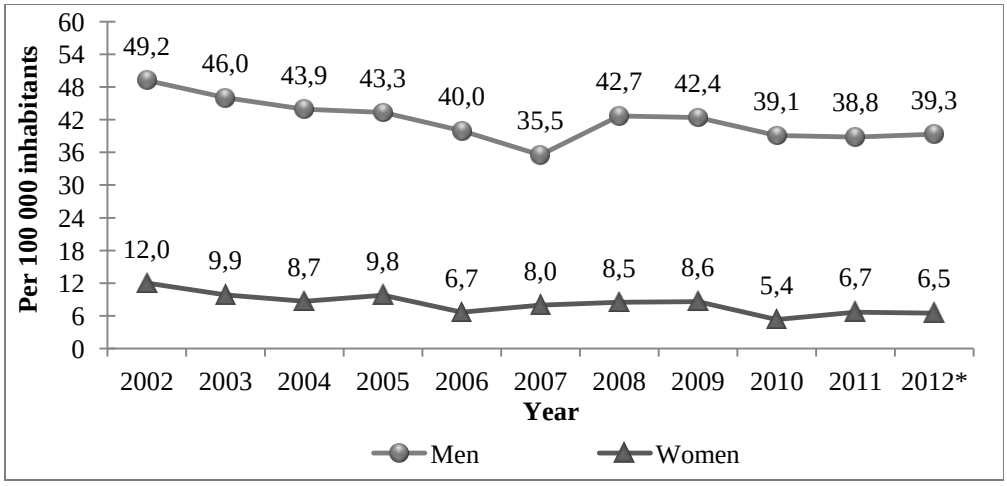


*Figure 29.* **Mortality due to suicides, per 100,000 inhabitants (ICD-10 code X60-X84)**
*Data source: CDPC, The register of causes of death among the inhabitants of Latvia*
* The rates for 2012 have been calculated based on the average number of inhabitants in 2011

This situation gives evidence of the necessity to analyse the suicide risk factors more specifically in order to ensure multi-sector preventive activities.

Significant information with regard to mental health of the population of Latvia can be obtained not only from the routine statistical data, but also from the population studies. Some of the facts, which are directly or indirectly related to mental health of the population of Latvia (the facts are obtained from various studies performed within the last years), are listed below:

- 7.3% of inhabitants (in the age group 15-64) have been diagnosed with clinically significant depression during the last 12 months (2011)[1].
- 8.2% of inhabitants (in the age group 15-64), according to their own words, have used sedative preparations during the last week (2012)
- 1.3% of inhabitants (in the age group 15-64) consider their life as insufferable (2012).
- 14.4% of inhabitants (in the age group 15-64) have complained about insomnia during the last month (2012)[2].
- 30.0% of boys and 38.1% of girls (in the age of 11, 13 and 15) have complained about nervousness at least once a week.
- 20.9% of boys and 32.1% of girls (at the age of 11, 13 and 15) have complained about feeling low at least once a week[3].
- The prevalence of complaints about feeling low and nervousness among school children at the age of 11, 13 and 15 has decreased in 2009/2010 school year in comparison with 2005/2006 school year.
- Latvia is in the first place among countries involved in the HBSC study (38 countries) with the highest percentage of 15 years old schoolchildren, who had abused other children at least two times per month during the last two months[4].

[1] Vrubļevska J., Rancāns E., Trapencieris M., Sniķere S. Socio demographical characteristic of depression in the general population of Latvia RSU Scientific Conference for the year 2012. Theses. Riga, RSU, 2012, page 482.
[2] Health behaviour survey among Latvian adult population. The Centre for Disease Prevention and Control of Latvia.
[3] Pudule I., Velika B., Grīnberga D. *et al.* Health behavior survey among school children in Latvia for 2009/2010 school year, study results and tendencies. The Centre for Disease Prevention and Control of Latvia, Riga, 2012, page 42.
[4] Currie C., Zanotti C., Morgan A. *et.al* (ed.). Social determinants of health and wellbeing among young people. *Health Behaviour in School-aged Children (HBSC) study: international report from the 2009/2010 survey*. Copenhagen: WHO Regional Office for Europe, 2012, 252 p.

- 25.5% of teenagers (in the age group 15-16), according to their own words, had thought about suicide during their life, while 14.4% of teenagers had planned a suicide, 8.7% of teenagers had attempted to commit a suicide and 1.7% of teenagers had received medical aid due to attempted suicide[1].

[1] Pulmanis T., Spriņģe L., Trapencieris M. et al. Lifetime prevalence of suicidal behaviour and its changes observed over time in 15-16 years old people (by age groups) in Latvia. Riga, RSU Scientific articles 2011, volume 1, page 325.

# 7. LIFESTYLE HABITS OF THE POPULATION

Margita Štāle
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Information concerning health-affecting habits of the population is mainly obtained from population studies, while the routine statistics can only reflect consequences. According to the data, there has been significant differentiation observed with regard to health-affecting habits and health condition of the population of Latvia in relation to demographic and socio-economic groups. These facts give evidence of the inequality existing in the healthcare field in Latvia. For example, there have been differences observed with regard to physical activities, overweight and obesity, smoking and use of other addictive substances, as well as to mental health, immunisation and availability of healthcare services[1].

According to the study data, the concept reported by inhabitants (in the age group 15-64) with regard to the influence of health-affecting habits on the health of people, is the following: 63% of Latvian inhabitants, who were asked a question "What could most certainly help people live to 100 years?", have responded that it could be a healthy lifestyle, while also mentioning healthy food (64%), sufficient sleep time (40%), systematic physical activities (38%), avoiding pernicious habits (31%) as the most important things to ensure a healthy lifestyle. However, only 15% or respondents have reported that they carefully look after their health. Only one third of respondents (32%) have specified that they consume healthy food, while only approximately one fifth of respondents (21%) have expressed an opinion that they do all necessary things to ensure a healthy lifestyle. Slightly more than one half of respondents (61%) have specified that it is necessary to educate school children more seriously with regard to healthy lifestyle, food, etc. in order to promote a healthy life, as well as to popularise healthy lifestyle with the use of mass media (51%)[2].

Change of lifestyle habits is the important factor for health promotion.

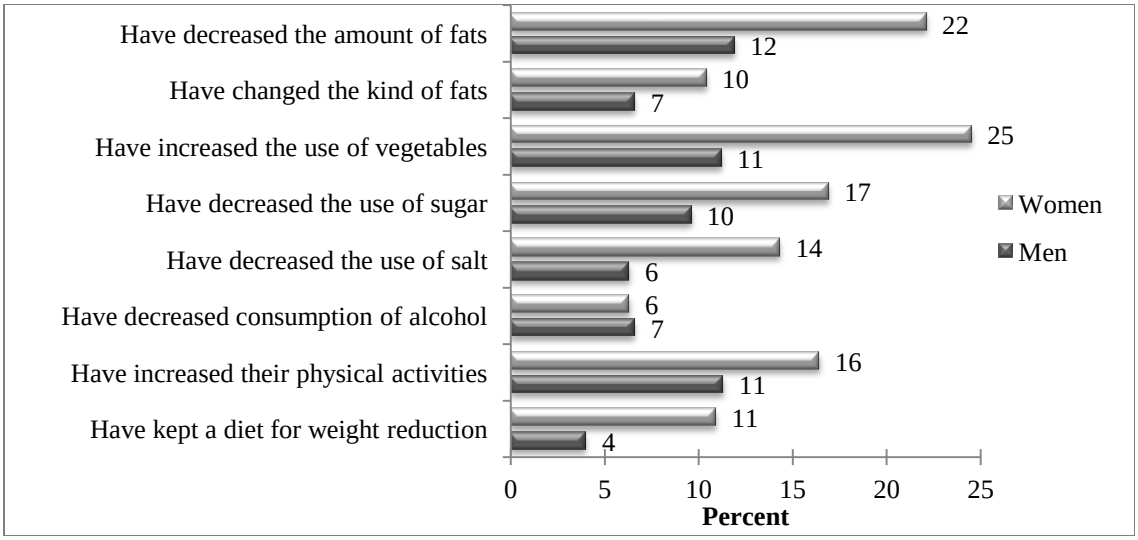


*Figure 30.* **Percentage of adults (age group 15-64) who have changed their health-affecting habits during the last year (2012)**

*Data source: CDPC, the Health behaviour survey among Latvian adult population*

[1] Štāle M., Skrule J. *Health of the population of Latvia.* CDPC, 2012, page 112.
[2] Healthy lifestyle. DNB barometer No. 48, 2012, page 27.

People with a higher education level, as well as the inhabitants of cities and women, change their lifestyle habits most often in order to improve their health condition. According to the survey results obtained in 2012, 18% of inhabitants in the age group 15-64 have increased consumption of vegetables (according to their own words), while 14% of people have increased the scope of their physical activities, 17% of people have decreased the amount of fats in their food, and 13% of people have decreased consumption of sugar with the aim to improve their health (see Fig. 30)[1].

## *7.1. Nutrition habits*

Adequate and balanced nutrition is one of the main pre-conditions for good health condition, while particular attention is being increasingly focused on the correlation between nutrition habits and the prevalence of chronic diseases[2]. According to estimations performed over a longer period of time, the nutritional habits of Latvian people (in the age group 15-64) have improved with regard to particular products - for example, consumption of milk with high fat content has decreased, while consumption of grain bread has increased; sugar is less added to tea and coffee[3].

Analysing data with regard to nutrition habits of Latvian people (in the age group 15-64) for the year 2012, only each forth person (27%) consumes fresh vegetables each day, while only 5% of people consume thermally processed vegetables every day (see Fig. 31). Rural people consume the least amount of vegetables, while the inhabitants of Riga consume the greatest amount of these products. Only each fifth person (19%) has reported that he/she consumes fresh fruits or berries every day. In comparison with 2010, the percentage of those people, who consume vegetables and fruits every day, has decreased.

Rye bread is most frequently used in everyday meals (72% in 2012; 77% in 2010), similarly to white bread (63% in 2012; 72% in 2010), while 40% of people consume grain bread or branny bread every day, which is by 7 percentage points higher in comparison with the survey data for the year 2010. Women consume grain bread or bran bread relatively more frequently (women - 51%; men - 30%), as well as people with higher education[4].

According to the analysis of milk consumption, approximately one half of people consume milk every day (in the age group 15-64). Fermented milk products are relatively less consumed by people, as 62% of inhabitants consume curds every day (see Fig. 31). In comparison with 2010, the percentage of such people has increased. Higher percentage of milk consumers is observed among rural people, while fermented milk products are more frequently consumed by urban people.

Latvian people still consume an excessive amount of salt, while consumption of fish products is insufficient. 70% of inhabitants usually add salt to their food during the mealtime, while 8% of respondents always add salt to their food, even if they did not taste this food first. Only 9% of respondents add iodised salt to their food. Only 14% of inhabitants consume fish products three or more times per week[5].

Confectionery products and sweetened beverages still remain a part of everyday food. Cakes and biscuits are consumed three and more times per week by 27% of respondents, while

[1] Health behaviour survey among Latvian adult population. The Centre for Disease Prevention and Control of Latvia.
[2] Diet, nutrition and the prevention of chronic diseases: scientific background papers of the joint WHO/FAO expert consultation. *Public Health Nutrition.* 2004, Vol 7, N.1(A), Supplement 1001.
[3] Health behaviour survey among Latvian adult population. The Centre for Disease Prevention and Control of Latvia.
[4] Health behaviour survey among Latvian adult population. The Centre for Disease Prevention and Control of Latvia.
[5] Health behaviour survey among Latvian adult population. The Centre for Disease Prevention and Control of Latvia.

sweets are regularly consumed by 21% of inhabitants (see Fig. 31). In comparison 2010, the percentage of those people, who drink coca-cola or lemonade, has increased (13% in 2012)[1].

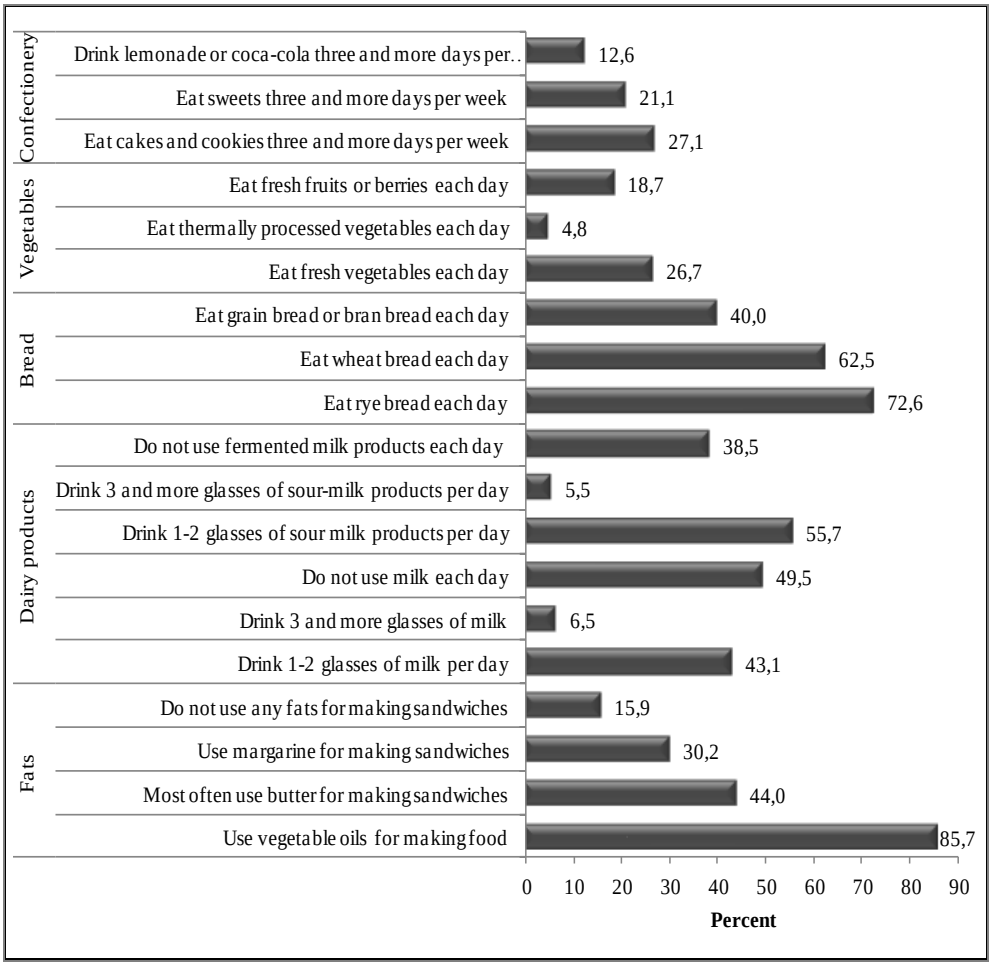


*Figure 31*. **Nutrition habits of the adult population (age group 15-64) in 2012, the percentage**

*Data source: CDPC, The Health behaviour survey among Latvian adult population*

The nutrition habits observed among children are not more encouraging, regardless of the fact that adequate and balanced nutrition is required not only for the prevention of health problems, but also for the proper growth and development of a child. In accordance with the data obtained for the year 2010, only 25% of school children (at the age of 11, 13 and 15) consume vegetables at least once a day, while fruits are regularly consumed by 27% of children. Consumption of fruits and vegetables decreases accordingly to people's ageing. In comparison with survey data for other years, consumption of vegetables has decreased, while consumption of fruits has become more popular. Only 63% of school children have breakfast in the morning on working days, as the popularity of breakfast has been decreasing over time (as a child grows up)[2].

School children are more willing to consume sweets every day instead of fruits and vegetables. In 2010, only a third of school children (at the age of 11, 13 and 15) had consumed

[1] Health behaviour survey among Latvian adult population. The Centre for Disease Prevention and Control of Latvia.

[2] Pudule I., Velika B., Grīnberga D. *et al.* Health behaviour survey among school children in Latvia for 2009/2010 school year, research results and tendencies. Riga, The Centre for Disease Prevention and Control of Latvia 2012, page 42.

sweets at least once a day, but these rates have decreased over time. The percentage of those girls, who consume sweets every day, is greater in comparison to boys (accordingly 37% and 29%). 8% of school children have consumed carbonated sweetened beverages at least once a day. Unfortunately, the availability of unhealthy food (such as sweets and sweetened beverages) in schools is still more prevalent in comparison with healthy food (yoghurt, milk, fresh vegetables)[1].

## *7.2. Physical activities*

As it is recommended by the WHO, adults should perform moderate physical exercises at least 150 minutes per week, or intensive physical exercises 75 minutes per week. For other age groups, as well as for certain groups of adults (considering their health condition) the scope of recommended physical activities may differ[2].

According to the survey for the year 2012, 38% of the inhabitants of Latvia (age group 18-74) have mentioned physical activities as a significant factor for healthy lifestyle (as the next significant factor after healthy food (64%) and sufficient sleep (40%)); however, only 31% of people perform physical activities regularly in order to remain fit and to maintain good health[3]. Data of another survey conducted in 2012 also show that only 29% of inhabitants (age group 15-64) perform physical exercises for at least 30 minutes at least 2-3 times per week (and more often). Only 15% of inhabitants[4] perform the recommended scope of physical activities (at least 30 minutes at least 4-6 days per week).

Answers obtained from respondents with regard to their leisure time habits give evidence of a sedentary lifestyle, as 49% of respondents (age group 15-64) spend their leisure time mostly reading or watching TV. Generally, only 33% of respondents have noted that they spend their leisure time on walking or bicycling, while 18% of respondents have mentioned physical training. Sedentary lifestyle is more prevalent among people of older age. In comparison with the data of 2010, the rates with regard to physical activities have deteriorated[5].

According to the study data, 38% of respondents (age group 18-74) have noted that healthcare specialists should provide more information in order to motivate people to maintain a healthy lifestyle. Experts also have an opinion that general practitioners or other healthcare specialists should be the best friends and advisors to promote healthy lifestyle among patients. If a healthcare specialist is well informed about physical peculiarities, medical records and other significant factors with regard to patients, the provided recommendations can be appropriate, reasonable and (as the most important aspect) realisable [6]. According to the obtained data, those inhabitants (age group 15-64), who have insufficient amount of physical activities (less than two times per week), have received a doctor's advice to increase the level of physical activities only in 7% of cases, while 13% of respondents have received this advice from their family members or from other people. With regard to the promotion of a healthy lifestyle in Latvia, 18% of respondents have an opinion that, it should be necessary to implement mandatory sports activities not only in schools and high schools, but also in working places, while 16% of

[1] Pudule I., Velika B., Grīnberga D. *et al.* Health behaviour survey among school children in Latvia for 2009/2010 school year, research results and tendencies. Riga, The Centre for Disease Prevention and Control of Latvia 2012, page 42.
[2] *Global Recommendations on Physical Activity for Health*. World Health Organisation, 2010, 60 p.
[3] Healthy lifestyle. DNB barometer No. 48, 2012, page 27.
[4] Health behaviour survey among Latvian adult population. The Centre for Disease Prevention and Control of Latvia.
[5] Health behaviour survey among Latvian adult population. The Centre for Disease Prevention and Control of Latvia.
[6] Healthy lifestyle. DNB barometer No. 48, 2012, page 27.

respondents have advised to provide bonuses at the places of work for those people, who engage in sports activities and have a healthy lifestyle[1].

With regard to the main reasons, why people do not do particular things, which are considered to be important for a healthy lifestyle, including the sufficient amount of physical activities, the respondents (age group 18-74) have most frequently mentioned a lack of time (35%), as well as laziness and a lack of will-power (34%)[2]. As it can be evidenced by these answers, for the maintaining of a healthy lifestyle it is very important not only to provide information and to encourage people (also from a doctor's side), but also to ensure a possibility, i.e. to make a healthy choice the most available for inhabitants.

Similar as for adults, the level of physical activities among children is also insufficient and general trends should be assessed negatively. For children in the age group 5-17, a sufficient amount of physical activities means at least one hour of activities (with moderate intensity) each day[3]. In 2010, the average number of days, during which school children (at the age of 11, 13 and 15) have been physically active for at least one hour, was 4.1 days. This number is lower than the number recorded in 2006 (4.3 days). In 2010, only 24% of boys and 16% of girls have performed a sufficient amount of physical activities. The percentage of those respondents, who have a sufficient amount of physical activities, is decreasing in the older groups of boys and girls[4].

Spending leisure time on watching TV and/or sitting at a computer is considered as a significant factor, which decreases physical activity of children. According to the data obtained in 2010, in total there are 23% of school children, who watch TV (including video and DVD) every day for four and more hours every day on working days, while on weekends this proportion are almost twice higher - 41% of school children (at the age of 11, 13 and 15) (see Fig. 32). However, in comparison with 2006, these rates have decreased in all age groups. It is possible, that the time spent on watching TV has decreased due to the increased amount of time spent on sitting at a computer[5].

[1] The Health Behaviour Survey among Latvian Adult Population. The Centre for Disease Prevention and Control of Latvia.
[2] Healthy lifestyle. DNB barometer No. 48, 2012, page 27.
[3] *Global Recommendations on Physical Activity for Health*. World Health Organisation, 2010, 60 p.
[4] Health Behaviour Survey among School-Aged Children (HBSC). The Centre for Disease Prevention and Control of Latvia.
[5] Health Behaviour Survey among School-Aged Children (HBSC). The Centre for Disease Prevention and Control of Latvia.

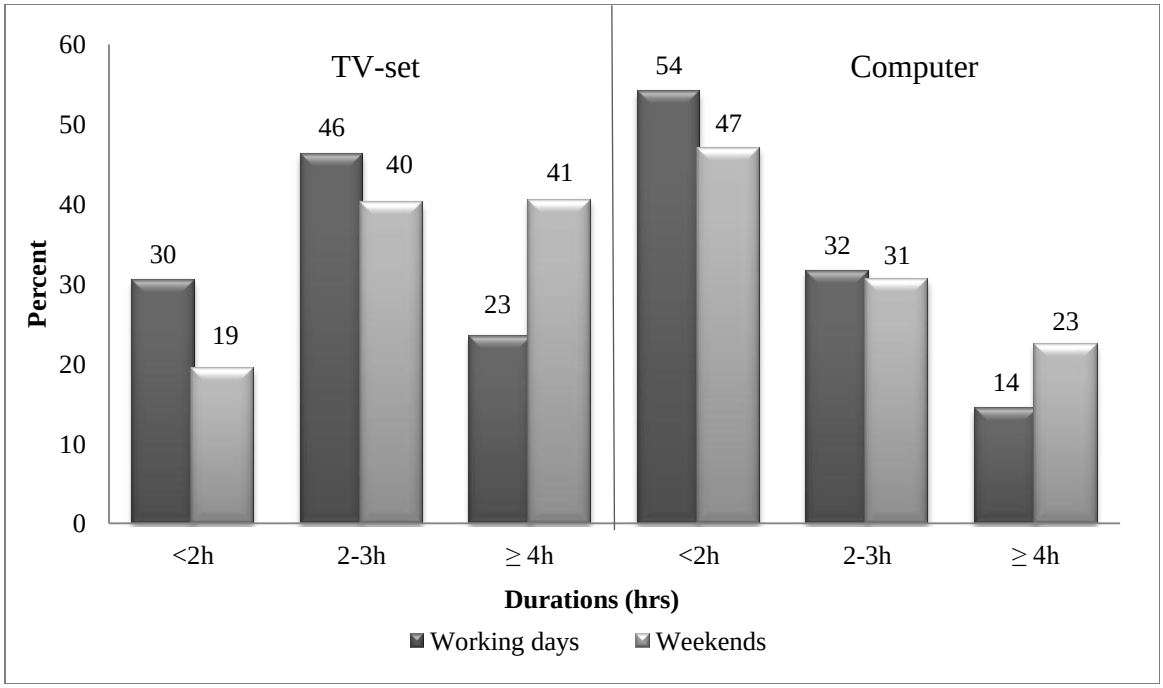


*Figure 32.* **Duration of TV watching and computer use among school children (at the age of 11, 13 and 15), the percentage**

*Data source: CDPC, Health behaviour survey in school-aged children in Latvia, for the school year 2009 / 2010*

According to the data of the survey conducted in 2010, 23% of boys and 29% of girls spend three and more hours on sitting at a computer on working days, while these rates for weekends are approximately by 12 per cent points higher. The time spent on sitting at a computer increases in older groups of children. Overall, girls spend more time on watching TV and sitting at a computer, in comparison to boys; however, in relation to particular evaluation of the time spent on playing computer games or game consoles, boys spend more time on these activities. 37% of boys and 10% of girls play computer games three and more hours on working days, while on weekends this rate reaches accordingly 50% and 17%[1]. Due to the development of information technologies, the significance of everyday computer use has increased, especially among children. Computers can be continuously used for learning purposes, as well as for entertainment, which replaces physical activities. Such use of computers can cause a negative impact on children's health, for example, to result in postural disorders, eyesight problems, obesity and psychological disorders[2].

## *7.3. Overweight and obesity*

Obesity and overweight are most often related to unhealthy nutrition habits and sedentary lifestyle[3]. The body mass index (BMI) is used for the evaluation of people's body weight. According to the data of 2012, normal body weight (BMI 18.5-24 kg/m$^2$) is observed only to 48% of inhabitants (age group 15-64), while overweight (BMI 25-29 kg/m$^2$) and obesity (BMI ≥30 kg/m$^2$) are observed to 49% of people (accordingly 32% and 17%). Prevalence of overweight and obesity increases proportionally with people's ageing. Overweight is observed among men (36%) more often than among women (28%), while obesity is more prevalent among

[1] Health Behaviour Survey among School-Aged Children (HBSC), The Centre for Disease Prevention and Control of Latvia

[2] Subrahmanyam K., Kraut R.E., Greenfield P.M., *et al*. The impact of home computer use on children's activities and development. *The Future of Children,* 2000, Vol. 10, N. 2, pp. 123-144.

[3] The challenge of obesity in the WHO European Region and the strategies for response. Summary. WHO, 2007, 76 p.

women - 19% (among men - 16%). In comparison with 2010, the percentage of men with overweight or obesity has increased. Only for 17% of those respondents, who were diagnosed with overweight or obesity, it was recommended by a doctor to decrease their body weight, while for 18% of respondents it was recommended by their family members[1].

Unfortunately, overweight and obesity are problems not only for adults. According to the data of 2010, overweight and obesity are observed to 9% of boys and 14% of girls already at the age of 13. Data of the anthropometric survey of children for the year 2010 give evidence of a more alarming situation, as each forth (24%) of first grade pupils has been diagnosed with overweight and obesity (in accordance with WHO standards for this age, divided by gender). In comparison with data for the year 2008, the percentage of normal body weight among first grade pupils has decreased, while the percentage of obesity has increased both among boys and girls[2].

[1] The Health Behaviour Survey among Latvian Adult Population. The Centre for Disease Prevention and Control of Latvia.
[2] Research on children anthropometric parameters and school environment. The Centre for Disease Prevention and Control of Latvia.

# 8. USE OF ADDICTIVE SUBSTANCES

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Use of addictive substances can be a risk factor for various non- communicable diseases, including mental health disorders[1,2,3]. Use of these substances is often associated with risky behaviour, especially among teenagers. According to various studies[4,5,6], people start to use addictive substances already in school age, regardless of the fact that it is prohibited to sell tobacco products and alcohol to children below the age of 18[7]. High prevalence of tobacco and alcohol use is associated with relatively easy access to these products. According to the data for the year 2011, 74% of 15 years old school children have indicated that it is easy for them to buy cigarettes, while 84% of school children have reported that alcohol is easily accessible for them. These rates have been decreasing over time, as it can be explained with the increase of prices for cigarettes and alcohol (mainly strong spirits)[8].

It should be taken into account that the use of psychoactive substances, including alcohol, can be dangerous not only for particular persons (as it can cause, facilitate or increase various diseases), but also for their relatives and for the society in general, by creating a negative social environment: increase of criminal activities, violence, family problems, unemployment, risk of accidents, for example, caused by driving under the influence of psychoactive drugs[9,10,11].

## *8.1. Smoking*

Smoking is the second most significant premature death factor in the world (after high blood pressure)[12]. Globally, tobacco causes more cases of death, in comparison to such factors as HIV, use of illegal drugs, use of alcohol, suicides, murders and mechanical vehicles (taken all

[1] Byrne P., Jones S., Williams R. The association between cannabis and alcohol use and the development of mental disorder. *Current Opinion in Psychiatry*, 2004, V.17, N.4, pp. 255-261.
[2] Action Plan for implementation of the European Strategy for the Prevention and Control of Non-communicable Diseases 2012−2016, World Health Organisation, 2012, 33 p.
[3] The aim: drug substances. Prevalence of concomitant diseases – drug use and mental disorders. The European Monitoring Centre for Drugs and Drug Addiction 3/2004.
[4] The research study 'Patterns and tendencies of addictive substances use among school children' (ESPAD). The Centre for Disease Prevention and Control of Latvia.
[5] Health Behaviour Survey among School-Aged Children (HBSC). The Centre for Disease Prevention and Control of Latvia.
[6] Koroļeva I., Mieriņa I., Sniķere S. et al. The impact caused by risk and protective factors with regard to the use of addictive substances among young people. The Riga City Council, the Institute for Social Research, 2010, page 70.
[7] The Law On Elimination of Manufacturing, Marketing and Advertisement of Tobacco Products and Smoking adopted by the Parliament (*Saeima*) of the Republic of Latvia on 07.07.1997.
[8] The research study 'Patterns and tendencies of addictive substances use among school children' (ESPAD). The Centre for Disease Prevention and Control of Latvia.
[9] Data provided by the State Police and by the Ministry of the Interior.
[10] Modestin J., Ammann R. Mental disorders and criminal behaviour. *The British Journal of Psychiatry*, 1995, V.166, pp. 667-675.
[11] Koroļeva I., Rungule R. et al., Research study with regard to alcohol use in relation to traumatism and violence, the Public Health agency, 2008, page 56.
[12] The global Burden of Disease: Generating Evidence, Guiding Policy". Institute for health metrics and evaluation. University of Washington; URL: http://healthmetricsandevaluation.org Viewed 07.05.2013.

together)[1]. Every year almost 700 thousand European people are subject to premature death caused by the consequences of tobacco use. It is considered that the costs of smoking observed for the EU countries amount to at least EUR 100 billion[2]. According to a study, smoking in our country continuously remains a significant risk factor affecting people's health.

According to a study conducted in 2012, the percentage of smokers in Latvia has been the second highest in Europe, as a higher percentage of smokers has been observed only in Greece[3].

According to the data of 2012, 34% of inhabitants (age group 15-64) are smoking every day, while 52% of smokers are men and 18% of smokers are women. In comparison with 2010, the percentage of everyday smokers among men has increased by 5 percentage points, while the percentage of daily smokers among women has decreased by 3 percentage points (see Fig. 33). 59% of everyday smokers (in 2012) have been smoking on a regular basis for almost 11 years, while 47% of everyday smokers have been smoking at least 15 industrially made cigarettes per day[4].

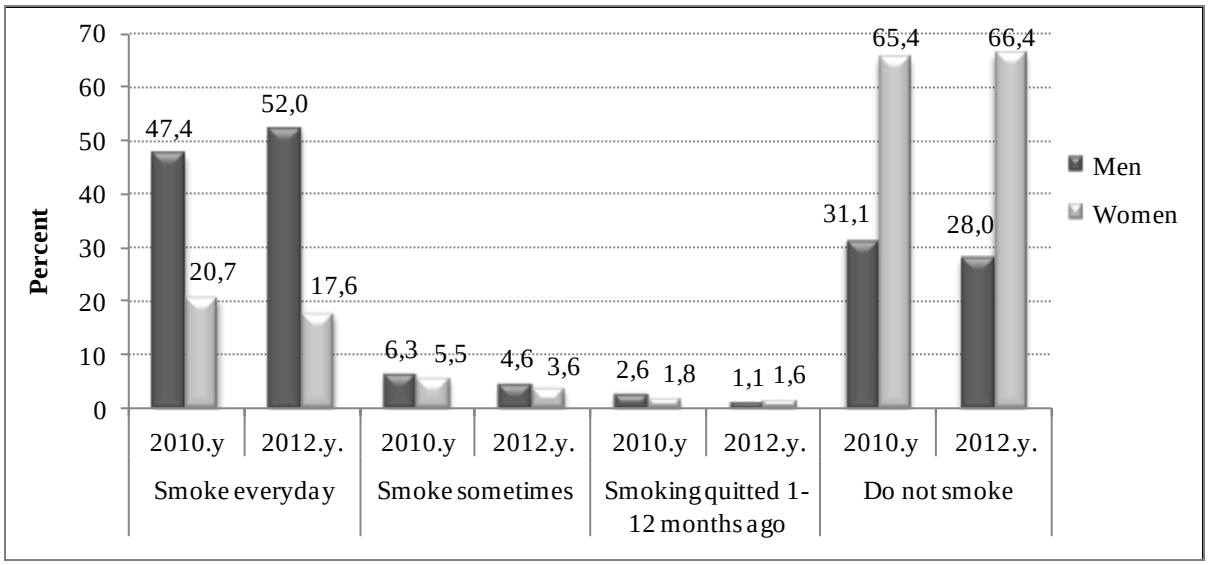


*Figure 33.* **Smoking habits among men and women (age group 15-64), the percentage**
*Data source: CDPC, The Health behaviour survey among Latvian adult population*

With regard to the socio-demographic profile of everyday smokers, it must be concluded that the highest proportion of everyday smokers among men is observed for the age group 45-54 (61%), while among women the greatest percentage of everyday smokers is observed for the age group 35-44 (22%). The greatest percentage of everyday smokers is observed among people with primary education level (46%), as well as among rural people (36%).

Smoking is a long-time habit among the inhabitants of Latvia, as it can be evidenced by the fact that 24% of everyday smokers have been smoking for 26 years and more. Furthermore, 67% of everyday smokers are not aware of the negative impact caused to their health by smoking (or pay little attention to it). Only 27% of smokers have seriously tried to quit smoking during the last year. 25% of smokers are planning to quit smoking within the next year. 45% of everyday smokers were given an advice from their family members to quit smoking. Aside from family

[1] Centres for Disease Control and Prevention. Smoking-Attributable Mortality, Years of Potential Life Lost, and Productivity Losses-United States, 2000–2004. *Morbidity and Mortality Weekly Report*, 2008, Vol. 57, N. 45, pp. 1226–1228.
[2] Attitudes of Europeans towards tobacco. Special *Eurobarometer* 385. European Commission, 2012, 167 p.
[3] Attitudes of Europeans towards tobacco. Special *Eurobarometer* 385. European Commission, 2012, 167 p.
[4] Health behaviour survey among Latvian adult population. The Centre for Disease Prevention and Control of Latvia.

members, the advice to quit smoking is more often given by a doctor (18%), by a dentist (2.3%), by a pharmacist (2.1%) and other healthcare specialists (2.9%)[1].

Smoking is a long-term habit for the majority of inhabitants, as most people have started smoking already in their childhood. Smoking started in early age is associated with various significant health risk factors, including the risk of lung cancer and cardiovascular diseases, which increase in case of early start of smoking.

According to the data obtained in 2011, 76% of school children (at the age of 13-15) have already tried smoking. 39% of school children have tried their first cigarette below the age of 11 years. Early start of smoking is a significant factor, which results in high percentage of adult smokers in the future. 41% of school children have used tobacco products (cigarettes, shisha, cigarillos, chewing tobacco) during the last month. These facts give evidence of a tendency showing increased prevalence of smoking among girls, as they have used tobacco more often in comparison to boys (accordingly 41% and 39%). Approximately a third of school children (32%) have smoked cigarettes within the last month: 29% of boys and 34% of girls[2].

Smoking at least once a week is considered as a regular action with regard to school children. The percentage of regular smokers among school children is different for various age groups. Especially alarming tendencies are observed with regard to girls, as the percentage of regular smokers for this group has increased (see Fig. 34). Since 2002, the highest increase of the number of smokers is observed for children at the age of 15[3].

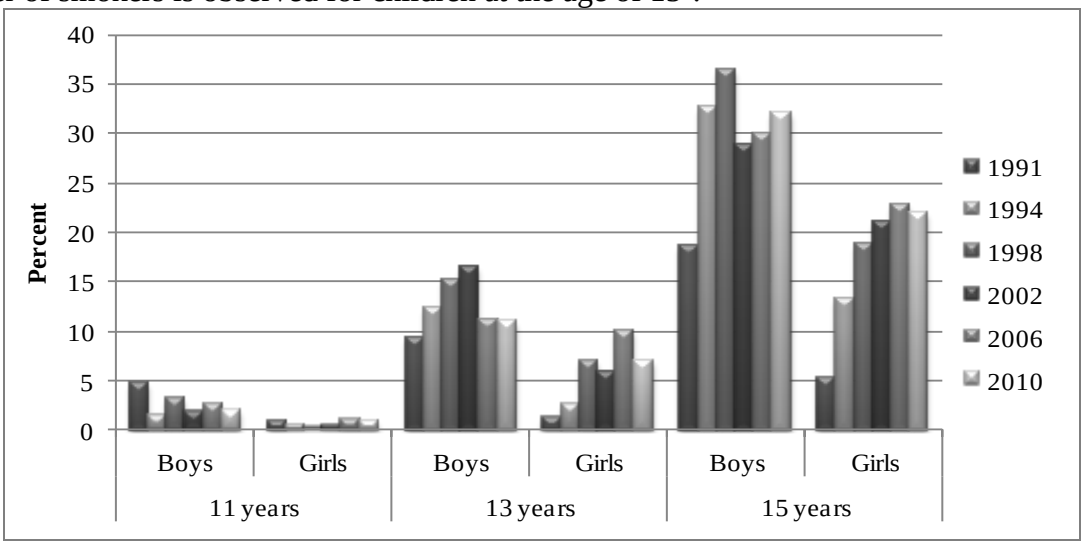


*Figure 34.* **Percentage of regular smokers among school children (at least once a week)**
*Data source: CDPC, HBSC research*

12% of school children have smoked each day within the last month. Strong addiction has developed to approximately 9% of school children, as they have a wish to smoke after they wake up in the morning. Regardless of the fact that the majority of young people smoke cigarettes, 59% of school children have tried shisha, while 20% of school children have tried electronic cigarettes. Young people most often are experimenting with various new addictive substances and products. This is the reason why such people are exposed to an increased risk of regular use of addictive substances.

[1]Health behaviour survey among Latvian adult population. The Centre for Disease Prevention and Control of Latvia.
[2] Velika B., Grīnberga D., Pudule I. Global youth tobacco survey (GYTS). The survey for the year 2011 in Latvia. The Centre for Disease Prevention and Control of Latvia, 2012, page 26.
[3] Health Behaviour Survey among School-Aged Children (HBSC). The Centre for Disease Prevention and Control of Latvia.

Since 2007, the percentage of those young people, who wish to quit smoking, has decreased from 72% in 2007 to 66% in 2011. Moreover, the percentage of those school children, who have tried to quit smoking, decreases when school children grow older[1].

## *8.2. Use of alcohol*

Use of alcohol is the cause of more than 60 various chronic diseases or acute conditions, and globally it is the third (after smoking and high blood pressure) most significant risk factor for premature death and disability; in Latvia use of alcohol is the most important risk factor[2].

In 2012, absolute alcohol consumption per one inhabitant in Latvia remained at the level of the previous year - 8.7 litres of absolute alcohol, while for people at the age above 15 it was 10.1 litres. Within the last four years, absolute alcohol consumption per one inhabitant remained unchanged, without significant variations[3] (see Fig. 35).

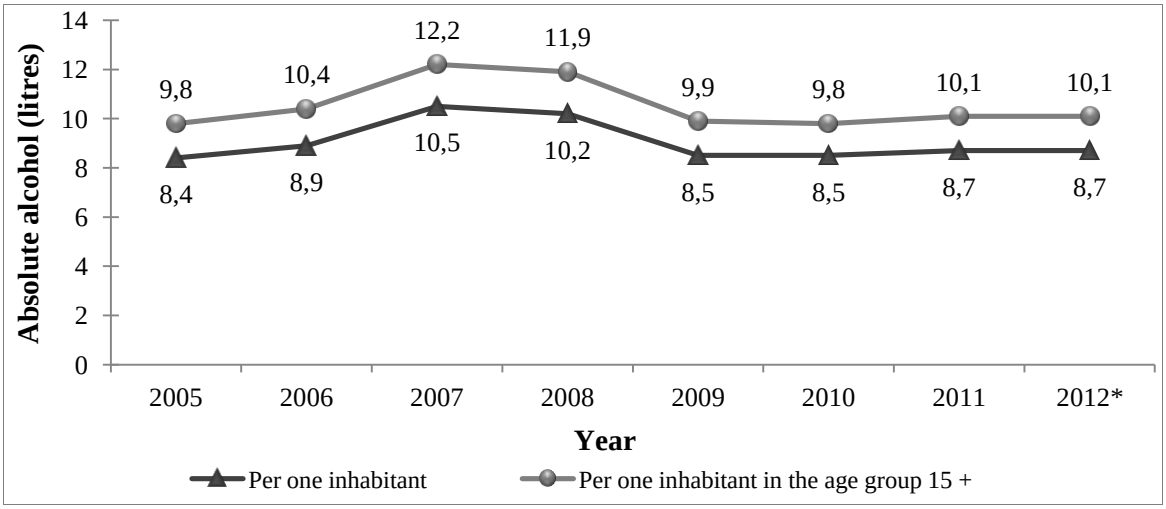


*Figure 35.* **Consumption of registered absolute alcohol over time, litres**

*Data source: Data calculated by CDPC with the use of indices provided by SRS with regard to turnover of alcoholic beverages*

* The rates for 2012 have been calculated based on the average number of inhabitants in 2011

According to the data of a study conducted in 2011, 85% of inhabitants in the age group 15-64 have used alcoholic beverages at least once within the last year (similar data have been obtained for the year 2007). With regard to the study data, it has been calculated that 5% of alcohol users (age group 15-64) have consumed 41% of the total amount of alcohol consumed in the country in 2011, while 10% of alcohol users have consumed 57% of the specified amount, and 50% of alcohol users have consumed up to 90% of the total amount of alcohol consumed in the country. The greatest amount of alcohol (83%) is consumed by men. Risky or excessive use of alcohol is more often observed among men (drinking at least 60 and more grams of absolute alcohol at one time). According to the data of 2011, 44% of inhabitants (age group 15-64) have

[1] Velika B., Grīnberga D., Pudule I. Global youth tobacco survey (GYTS). The survey for the year 2011 in Latvia. The Centre for Disease Prevention and Control of Latvia, 2012, page 26.

[2] The global Burden of Disease: Generating Evidence, Guiding Policy". Institute for health metrics and evaluation. University of Washington; URL: http://healthmetricsandevaluation.org Viewed 07.05.2013.

[3] Estimations performed by The Centre for Disease Prevention and Control of Latvia according to the alcohol excise tax data provided by SRS.

been exposed to risky use of alcohol: 62% of men and 26% of women. According to the study results, the expansion of alcohol addiction in Latvia has been clarified, as possible problems related to alcohol addiction have been found approximately for each eighth person in the age group 15-64 [1].

In accordance with the register data, the prevalence index with regard to **alcohol addiction** (ICD-10 code F10.2,3) in Latvia was 1072 per 100,000 inhabitants at the end of 2011, when approximately 1.1% of Latvian people have been registered at a narcologist's practice (for supervision) due to alcohol addiction[2] (see Fig. 36.).

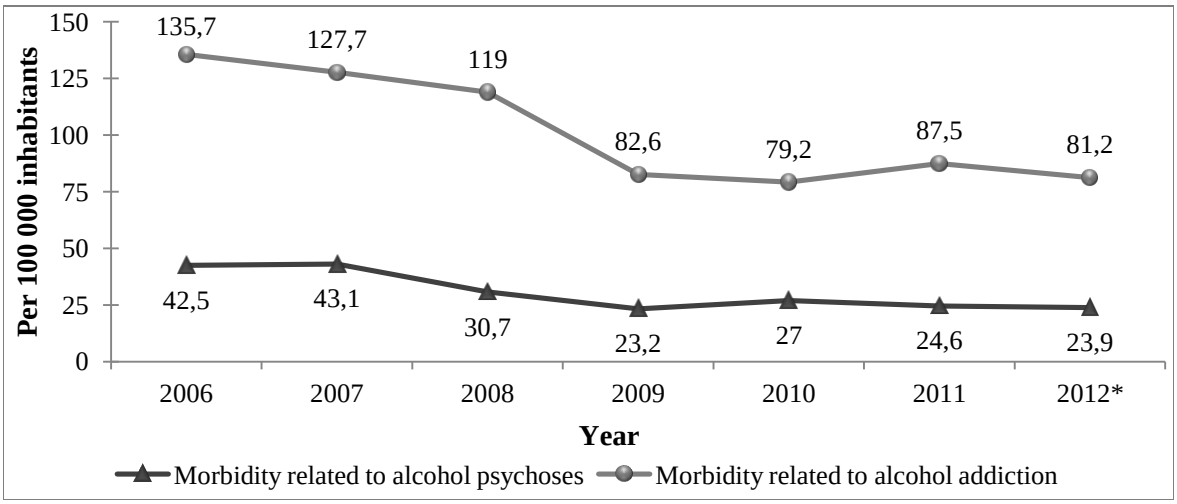


*Figure 36.* **Primarily registered morbidity with regard to alcoholic psychosis and alcohol addiction, per 100,000 inhabitants (ICD-10 code F10,4-9; F10.2,3)**
*Data source: CDPC, The register of patients suffering from certain diseases, with regard to narcological patients*
* The rates for 2012 have been calculated based on the average number of inhabitants in 2011

In 2012, 1671 patients with alcohol addiction have been primarily registered. Since 2006, the morbidity caused by alcohol addiction and the spread of alcohol addiction have been decreasing. Overall, the total number of alcohol-addicted patients reached 20,743 in 2012, while in 2008 the number of patients registered with alcohol addiction reached 30,318.

Morbidity with regard to **alcoholic psychoses** (ICD-10 code F10.4-9) is one of the main indices for monitoring the use of alcohol and consequences thereof. Overall, 491 patients have been primarily registered with alcoholic psychoses in 2012. Within the period from 2006 until 2012, decrease with regard to the first-time morbidity caused by alcoholic psychoses was observed, except for the year 2007, when the highest level of absolute alcohol consumption was observed for the specific time period [3] (see Fig. 37).

[1] Research study 'Prevalence of addictive substances use in the population in the year 2011'. The Centre for Disease Prevention and Control of Latvia.
[2] The register of patients with particular diseases, patients with drug use disorders. The Centre for Disease Prevention and Control of Latvia.
[3] The register of patients with particular diseases, patients with drug use disorders. The Centre for Disease Prevention and Control of Latvia.

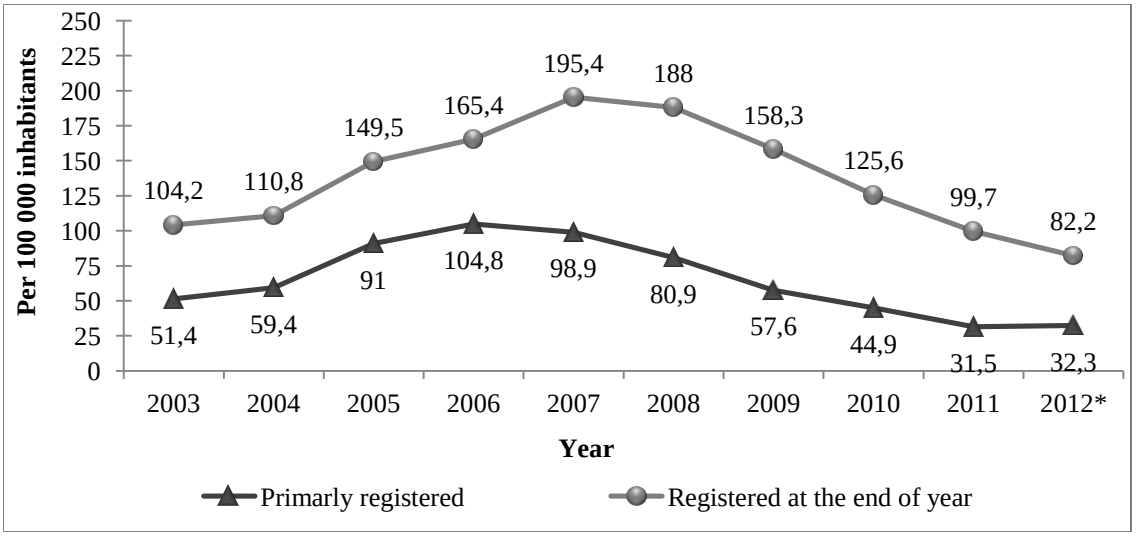


*Figure 37.* **Number of children primarily registered with psychical and behavioural disorders caused by alcohol use (and remaining in the register at the end of year), per 100 000 inhabitants (ICD-10 code F10)**

*Data source: CDPC, The register of patients with particular diseases, patients with drug use disorders*

* The indices for 2012 have been calculated based on the number of inhabitants for the year 2011

In 2007, the highest morbidity rates were observed among children with regard to psychical and behavioural disorders caused by the use of alcohol. Since 2007, decrease with regard to these rates is being observed; however, a slight increase was observed in 2012 (222 children have been registered in 2011, while 281 children were registered in 2012)[1].

According to the study, the habits of alcohol use observed among young people give evidence of even more negative situation, in comparison with the habits of adults. According to data observed in 2011, practically all young people (96%) in the age group 15-16 have used alcohol at least once, while 87% of young people have used alcohol within the last year, and two thirds of young people (65%) have used alcohol within the last month. Relatively regular experience of alcohol use (40 times and more during a lifetime) is observed for each third young person (35%). Approximately one half (49%; 54% in 2007) of the surveyed adolescents (age group 15-16) have used alcohol in a risky way (60 and more grams of absolute alcohol at one time of drinking) at least once within the last 30 days - this amount of alcohol exceeds the indices observed among adults.

Comparing the ESPAD study data with the data obtained for the year 2007, it must be concluded that the subjective alcohol availability rates have slightly decreased. In 2011, 84% adolescents at the age of 15-16 had an opinion that alcoholic beverages are easily or very easily available, while 90% of adolescents had such opinion in 2007[2].

Use of alcohol can result not only in various diseases, but also in death caused by the diseases and conditions, which are directly associated with the use of alcohol (for example, alcoholic cardiomiopathy, intoxication caused by alcohol), as well as by the consequences, which are partially associated with the use of alcohol (for example, liver diseases, various accidents, suicides). The rate of potentially lost life years (at the age of 15-64) is used for the evaluation of premature mortality caused by alcohol. It has been estimated that 21% of all premature lost years of life are lost due to alcohol use (data for the year 2011). Unfortunately, this percentage has increased over time during the last years[3].

[1] The register of patients with particular diseases, patients with drug use disorders. The Centre for Disease Prevention and Control of Latvia.

[2] The research study 'Patterns and tendencies of addictive substances use among school children' (ESPAD). The Centre for Disease Prevention and Control of Latvia.

[3] Skrule J. Potentially lost life years due to alcohol use. The Centre for Disease Prevention and Control of Latvia.

## *8.3. Use of drug substances*

Use of drug substances is a significant problem, which not only can be a cause of various diseases and premature death, but can also result in social problems. Use of drugs is a criminal activity, as it is related to the use of illegal substances. Overall 85 million or approximately one fourth of all Europeans at the age of 15-64 has tried some of the drug substances at least once in their life. The greatest part of these people (77 million) has used marijuana, while 15 million people have used cocaine, 13 million people have used amphetamines and 11 million people have used ecstasy[1].

Overall 14.3% of the inhabitants of Latvia at the age group of 15-64 have tried some drug substances in their life[2]. There are relatively less people (4.4% of inhabitants) who have used illegal drugs within the last year, while 1.8% of inhabitants have used illegal drugs within the last month. In comparison with 2007, decrease in drug use has been observed. Moreover, the drug use rates have returned approximately to the level of the year 2003.

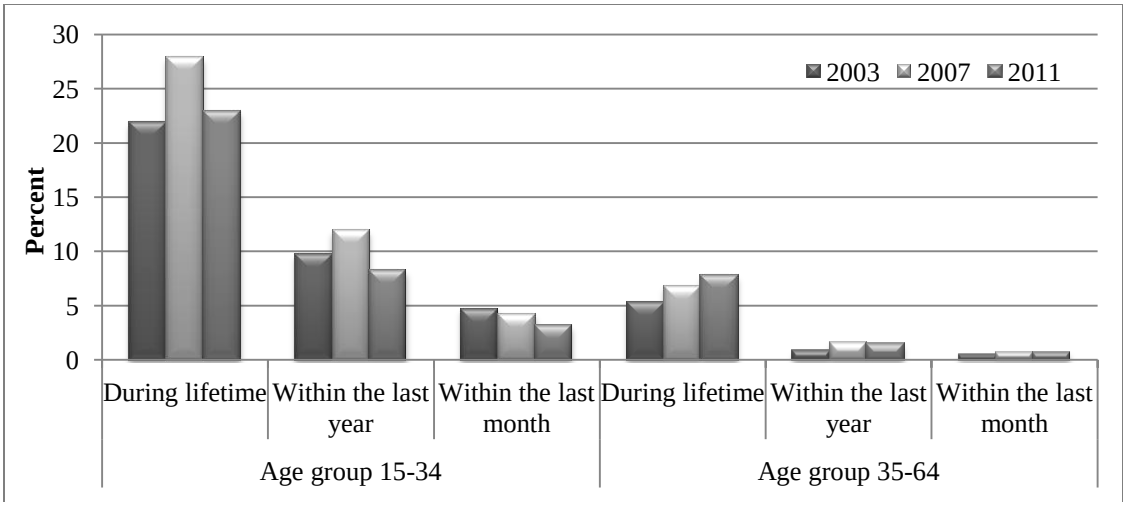


*Figure 38.* **Percentage of people who have tried any drugs, people who have used drugs recently and current drug users (age group 15-64) .**
*Data source: CDPC, data of the research study 'Prevalence of addictive substances use in the population'*

Young people (age group 15–34) have most frequently tried drug substances and have used them during the last year and during the last month - accordingly 22.9%, 8.2% and 3.2% of these people. The greatest number of those people, who have tried any drug substances, is observed among men at the age group of 15–34: 31% of men and 15% of women in this age group have tried drug substances, while 11% of men and 5% of women have used drugs during the last month.

In Latvia, similarly to the situation observed in Europe and in other countries, use of marijuana and hashish is the most prevalent illegal substance used by the population[3]. According to study data, a significant increase has been observed in Latvia during the last four years with regard to the number of young people (age group 15-16) who have tried marijuana and hashish.

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data; URL: http://www.spkc.gov.lv/aktualitates/490/lai-mazinatu-ar-alkohola-lietosanu-saistitos-naves-gadijumus-mediki-aicina-palielinat-alkohola-cenu-un-turpinat-ierobezot-reklamu (viewed 04.06.2013.).

[1] The European Monitoring Centre for Drugs and Drug Addiction, the annual European Drug Report. Tendencies and actualities. 2013; Lisbon: EMCDDA, page 80.

[2] Research study 'Prevalence of addictive substances use in the population in the year 2011'. The Centre for Disease Prevention and Control of Latvia.

[3] The Centre for Disease Prevention and Control of Latvia. The situation with regard to the drug addiction problem in Latvia in the year 2011. National report. Riga: 2012.

Respectively, the percentage of such people has increased from 18% in 2007 to 24% in 2011, and this increase is one of the most significant problems with regard to the use of marijuana in European countries[1].

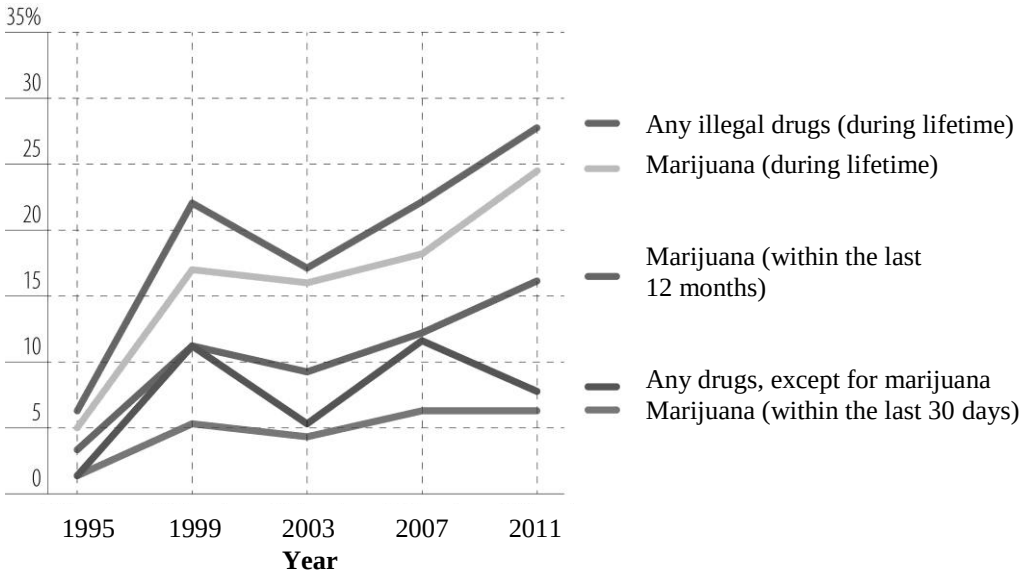


*Figure 39.* **Prevalence of drug use among school children (age group 15-16), the percentage**
*Data source: Trapencieris M. et al. ESPAD 2011, Patterns and tendencies of addictive substance use among school children. The Centre for Disease Prevention and Control of Latvia, 2012, page 58*

The percentage of those people (in the age group 15-64), who had tried marijuana, has not changed significantly, as 12.5% of people had tried marijuana in 2011, while 12.1% of people had tried this drug in 2007[2].

According to statistical data, the relative number of primarily registered patients (to whom the diagnosis is determined for the first time in their life) with diseases related to drug use and addiction syndrome or psychoses (F11–F19, except for F17) has increased during the last years (by 57% since 2009). In 2012, there were 642 primary registration cases or 31.2 per 100,000 inhabitants (426 cases, or 19.9 per 100,000 inhabitants in 2009). The increase can be explained not only with the increased morbidity, but also with the improvement of register maintenance. Overall 4454 cases of addiction and intoxication caused by psychoactive substances (except for alcohol and tobacco) or by excessive use of drugs were registered at the end of 2012[3].

[1] The Swedish Council for Information on Alcohol and Other Drugs (CAN) and the authors (2012), *The 2011 ESPAD Report. Substance Use Among Students in 36 European Countries*. Stockholm: CAN.
[2] CDPC. The situation with regard to the drug addiction problem in Latvia in the year 2011. National report. Riga: 2012.
[3] The register of patients with particular diseases, patients with drug use disorders. The Centre for Disease Prevention and Control of Latvia.

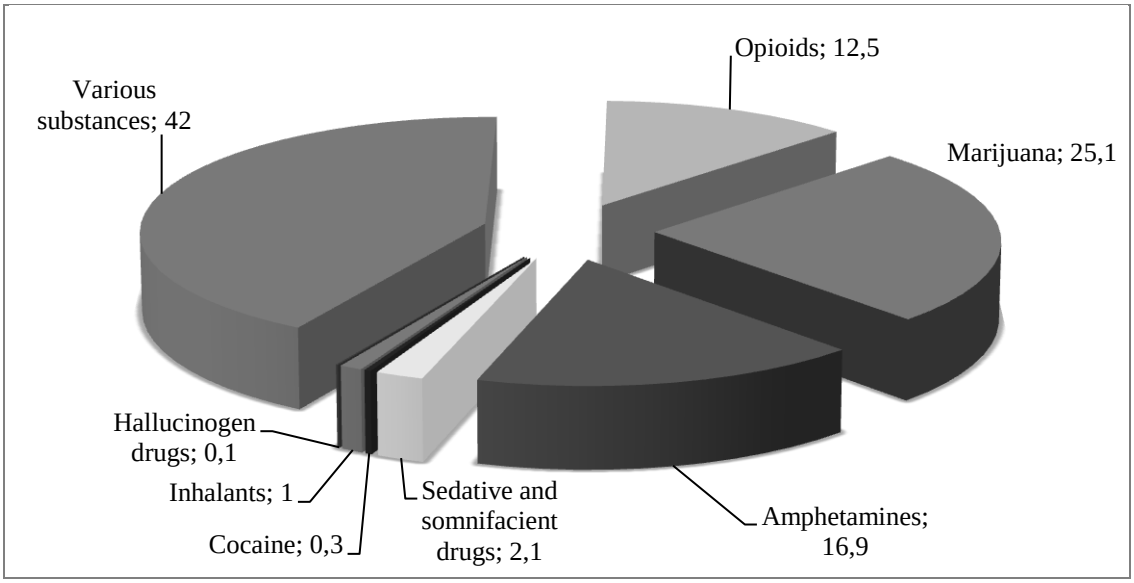


*Figure 40.* **Percentage of primarily registered patients diagnosed with drug use, drug addiction or psychoses, distributed by the used substances (ICD codes F11–F19, except for F17), 2012**

*Data source: CDPC, The register of patients with particular diseases, patients with drug use disorderss*

Over the past years, diagnose covering the use of multiple substances and dependencies (F19) was observed in 42% of primarily registered cases in 2012. The next most frequently mentioned diagnoses are related to the use of cannabinoids (F12 - 25.1%), stimulants (F15 - 16.9%) and opioids (F11 - 12.5%)[1].

High percentage of problematic drug users[2] is still observed in Latvia. In accordance with the latest estimations, currently there are almost 13 thousand (9.4 per 1000 inhabitants) problematic drug users in Latvia (age group 15-64) who mainly use heroine and/or amphetamine as injections[3]. Moreover, there were only 289 patients receiving medication-assisted treatment for opioid addiction in Latvia at the end of 2012. This rate is the lowest among European countries, when estimated in absolute numbers, as well as in the calculation per number of inhabitants[4].

[1] The register of patients with particular diseases, patients with drug use disorders. The Centre for Disease Prevention and Control of Latvia.

[2] Problematic use of drugs includes regular use of heroine and/or other opiates, use of cocaine and/or amphetamines and/or drugs in injections.

[3] Trapencieris M., Sniķere S., Pētersons A. *et al.* Habits and tendencies of drug use in Latvia. Results of the Stage 6 of the Cohort Study among drug users. Riga: The Centre for Disease Prevention and Control of Latvia, DIA+LOGS, 2013.

[4] Tendencies and actualities: The European Monitoring Centre for Drugs and Drug Addiction. The annual European Drug Report. Lisbon: EMCDDA, 2013, page 80.

# 9. INFECTIOUS DISEASES

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Less than a hundred years ago, infectious diseases where the main cause of death in particular among children and young people. The spread of several infectious diseases in many countries in the world and EU, including Latvia, has been stopped, limited or eliminated along with improvements in hygienic conditions, invention of new effective vaccines, improvement of the epidemiological monitoring system, as well as effective coordination of international activities in case of epidemics. At the same time, the risk of exacerbation and epidemic of several infectious diseases still remains, since they spread very quickly irrespective of any state borders and the standard of living in the specific country. For instance, HIV infection currently has acquired pandemic nature affecting all continents (more than 34 million people are infected around the world)[1].

Since the risk of some diseases decreases, people fail to pay adequate attention to preventive measures. Like with several infectious diseases among children, which may be prevented with vaccination - parents more often decide not to vaccinate their children, thus, vaccine-preventable disease incidence rate increases.

## 9.1. Vaccine-preventable infectious diseases

In order to decrease vaccine-preventable infectious diseases incidence rate, the Cabinet of Ministers issued "Regulations on Vaccination"[2] and the Immunisation Plan for 2012-2014, establish state-funded planned vaccination against tuberculosis, hepatitis B, diphtheria, tetanus, pertussis, *Haemophilus influenzae* type b infection, poliomyelitis, pneumococcal infection, measles, rubella, epidemic parotitis, varicella, human papillomavirus, tick-borne encephalitis, as well as partially state-funded vaccination against influenza (for persons in high risk groups)[3]. Significant achievements have been made in the prevention of vaccine-preventable infectious diseases, since vaccination coverage of the major target diseases have been achieved in all age groups of children (see Table 1), which is the main reason why incidence rates of diseases have decreased in continuous periods of time and remain stable during the recent years[4].

It has been calculated that as a result of immunisation, in Latvia, more than 30,000 cases of various infectious diseases and 100 cases of death among children are prevented annually. Incidence of several once widespread vaccine-preventable infectious diseases - tetanus, diphtheria, pertussis, measles, epidemic parotitis, poliomyelitis - since 1960 has decreased by 99%[5].

[1] World Health Organization, HIV/AIDS, Fact sheet No. 360, November 2012.URL: http://www.who.int/mediacentre/factsheets/fs360/en/index.html (viewed 20.06.2013).
[2] Cabinet Regulation No 330 of 20 September 2000, "Regulations on Vaccination".
[3] Immunisation Plan for 2012-2014 approved by the Cabinet Decree No. 232.; 26.09.2000.
[4] Data of the Centre for Disease Prevention and Control of Latvia
[5] Data of the Centre for Disease Prevention and Control of Latvia.

*Table 1. Rates of immunisation among children from 2010 to 2012*

| Infectious diseases | Age | Immunisation level (%) | | |
|---|---|---|---|---|
| | | 2010 | 2011 | 2012 |
| Tuberculosis | Live births | 91.7 | 93.7 | 96.6 |
| Hepatitis B | 12 months | 90.6 | 89.7 | 90.6 |
| Diphtheria, tetanus, pertussis and poliomyelitis | 12 months | 91.4 | 92.6 | 91.9 |
| *Haemophilus influenzae* type b infection | 12 months | 90.3 | 91.5 | 91.2 |
| Pneumococcal infection | 12 months | 62.4 | 86 | 85.6 |
| Diphtheria, tetanus, pertussis and poliomyelitis | 24 months | 90.0 | 97.9 | 92.7 |
| Measles, rubella, epidemic parotitis | 24 months | 91.7 | 88.3 | 90.4 |
| Varicella | 24 months | 80.3 | 80.9 | 75.3 |
| Pertussis | 7 years | 78.7 | 93.4 | 97 |
| Diphtheria, tetanus and poliomyelitis | 7 years | 96.9 | 96.9 | 97.7 |
| Measles, rubella, epidemic parotitis | 7 years | 97.2 | 93.3 | 94.7 |
| Human papillomavirus infection | 12 years, girls | 49.2 | 63 | 58.7 |
| Diphtheria, tetanus and poliomyelitis | 14 years | 88.6 | 93.1 | 85.7 |

*Data source: CDPC, Immunisation monitoring data*

The number of registered incidents of measles, rubella and epidemic parotitis has decreased during the recent years, only individual incidents have been registered, except the registered exacerbation of epidemic parotitis in 2012 with 41 registered cases of the disease. Although sporadic cases have been registered, epidemic spread of measles and rubella has not been registered, which may be due to sufficiently high immunity level in the population and the collective immunity effect.

**Varicella** (ICD-10 code B01) is the most widespread vaccine-preventable infection among children in Latvia. Several thousand children suffer from this illness every year. Within recent years, incidence rate decreases due to the fact that in 2008, a state-funded vaccination against varicella was implemented. Since 2007, varicella incidence rate has decreased by 41% (see Fig. 41)[1]. However, coverage of vaccination against varicella is still insufficient: in 2011 - 79.4%, in 2012 - 75.3%[2].

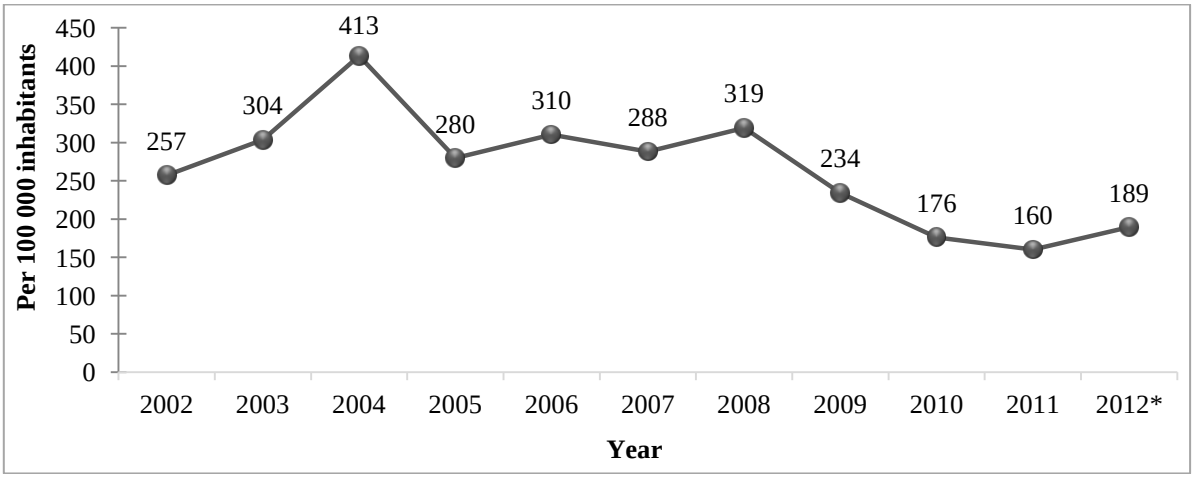


*Figure 41.* **Varicella incidence per 100,000 people (ICD code B01)**

*Data source: CDPC, State infectious disease and monitoring system (VISUMS)*

* The rate for 2012 has been calculated based on the average number of inhabitants in 2011.

[1] State infectious disease and monitoring system (VISUMS). The Centre for Disease Prevention and Control of Latvia.

[2] Immunisation monitoring data. The Centre for Disease Prevention and Control of Latvia.

Each year, cases of **diphtheria** (ICD-10 code A36) are registered as well irrespective of the fact that vaccination against diphtheria is funded by state. Although from 2009 to 2011, no case of diphtheria was registered among children, in 2012, some cases of diphtheria were registered among children again (three cases) (see Fig. 42)[1]. This suggests that the circulation of the causative agent of diphtheria in population not only continues, but also has become active due to insufficient coverage of vaccination among adults, which, in recent years, is gradually decreasing (in 2012 - 59.6%, 2009 - 65%)[2].

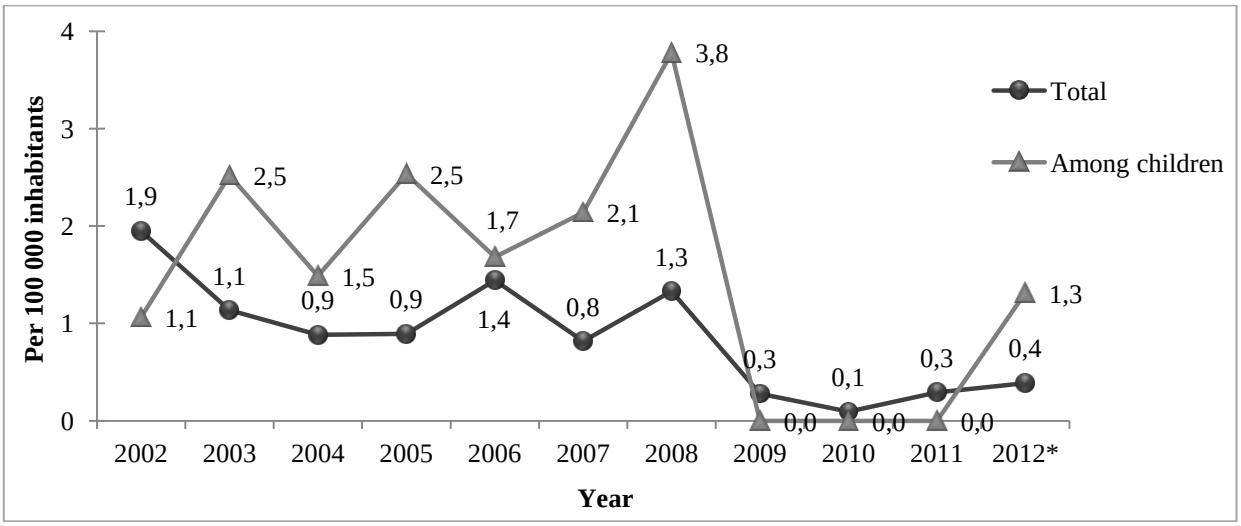


*Figure 42.* **Diphtheria incidence per 100,000 people (ICD code A36)**
*Data source: CDPC, State infectious disease and monitoring system (VISUMS)*
* The rate for 2012 has been calculated based on the average number of inhabitants in 2011

Irrespective of the achievements in the area of the vaccine-preventable disease prophylaxis, a sharp increase in **pertussis** incidence rate was observed in Latvia in 2012 (ICD-10 code A37). Overall, 206 (78%) out of 264 registered cases of pertussis were among children, including 24 infants, including one case resulting in death[3] (see Fig. 43).

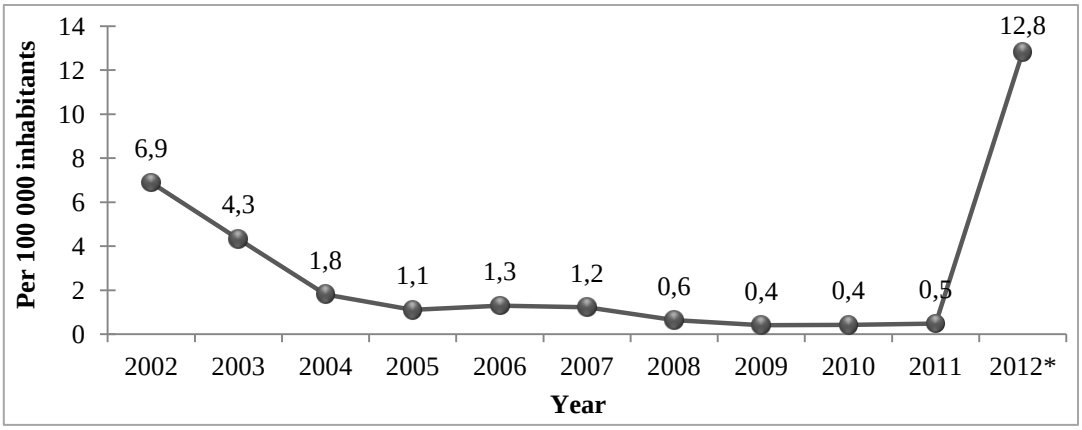


*Figure 43.* **Dynamics of pertussis incidence rate from 2002 to 2012 per 100,000 people (ICD code A37)**
*Data source: CDPC, State infectious disease and monitoring system (VISUMS)*
* The rate for 2012 has been calculated based on the average number of inhabitants in 2011

[1] State infectious disease and monitoring system (VISUMS). The Centre for Disease Prevention and Control of Latvia.
[2] Immunisation monitoring data. The Centre for Disease Prevention and Control of Latvia.
[3] State infectious disease and monitoring system (VISUMS). The Centre for Disease Prevention and Control of Latvia.

Pertussis incidence rate has a tendency to increase not only in Latvia; in recent years, outbreak of pertussis can be observed also in other European countries, including Lithuania and Estonia[1].

## 9.2. Tuberculosis and influenza

Despite the fact that **tuberculosis** (ICD-10 code A15-A19) examination and treatment is state-financed, Latvia belongs to those countries of Europe with high tuberculosis (TB) incidence and mortality rate[2]. However, up until 2009, explicit decrease in incidence and mortality due to TB was observed. In recent years, including 2012, increase in the incidence rate may be observed. Annually, ~60 new cases of tuberculosis are registered to children (in 2012 - 56 cases).

Within the last 10 years, a multi-resistant TB has been registered on average in 12% of cases (changes from 10% in 2007 to 15% in 2009). Furthermore, in recent years, a high proportion of extensively resistant TB (MR/XR-TB) has been registered among MR-TB patients (on average 11.7%, changes from 7.4% in 2003 to 20.4% in 2010)[3].

Every year the number of cases of the registered TB/HIV dual infections increases. The proportion of TB/HIV among first cases of TB in the middle of 2012 reached 12.5%[4], which, according to WHO guidelines suggests the situation of TB/HIV co-infection epidemic in Latvia[5].

Results of **influenza** monitoring carried out in Latvia show that influenza is the most widespread infectious diseases, from which 1.2%-2.1% of the population of Latvia suffer every season. Calculations show that economic losses from incapacity for work due to influenza, other acute respiratory infections and pneumonia during influenza epidemic season can exceed LVL 25,000,000, while treatment costs - LVL 5,800,000. At the same time, the lowest coverage of vaccination against influenza has been registered in Latvia. Furthermore, tendency of decrease in the coverage of vaccination has been observed (in season 2009/2010 - 0.78%, in season 2010/2011 - 0.52%, in season 2011/2012 - 0.44%). Irrespective of the fact that the state compensation for anti-influenza vaccines in risk groups is 50% of its price, coverage of vaccination in the above mentioned groups is very low as well. For instance, the vaccination level in the group of the population over 65 years is one of the lowest in EU Member States - 1.7% in season 2011/2012. In accordance with EC recommendations, until season 2014/2015, the level of 75%[6] should be achieved in this age group.

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[1] European Centre for Disease Prevention and Control, *Annual Epidemiological Report 2012*. Stockholm: ECDC; 2013; 266 p.

[2] European Centre for Disease Prevention and Control/WHO Regional Office for Europe. *Tuberculosis surveillance and monitoring in Europe 2013.* Surveillance Report. Stockholm: 2013.228p.

[3] Register of patients suffering from certain diseases on patients suffering from tuberculosis. The Centre for Disease Prevention and Control of Latvia.

[4] Data of the Centre for Disease Prevention and Control of Latvia.

[5] World Health Organization. *WHO policy on collaborative TB/HIV activities*. Guidelines for national programmes and other stakeholders. 2012. 36 p.

[6] Review of acute upper respiratory tract infection (AAEI) and influenza incidence rate in epidemic season 2011-2012. Epidemiological newsletter No. 35 (1275), 01.10.2012. The Centre for Disease Prevention and Control of Latvia.

## 9.3. Viral infections transmitted by parenteral mechanism and sexually transmitted infections

Latvia is among those EU/EEA states, where prevalence rates of **HIV infections and AIDS** (ICD-10 code B20-B24) are high. In recent years, increase in the prevalence of HIV infection may be observed in Latvia in 2012, achieving 16.5 per 100,000 people (see Fig. 44). According to ECDC data, in 2011, on average 5.7 HIV cases per 100,000 people were registered in EU/EEA states.

Latvia has the highest AIDS incidence rate in EU/EEA states[1]. In 2012, 6.7 AIDS cases per 100,000 people were registered[2]. In 2011, on average 0.9 AIDS cases per 100,000 people were registered In EU/EEA states[3].

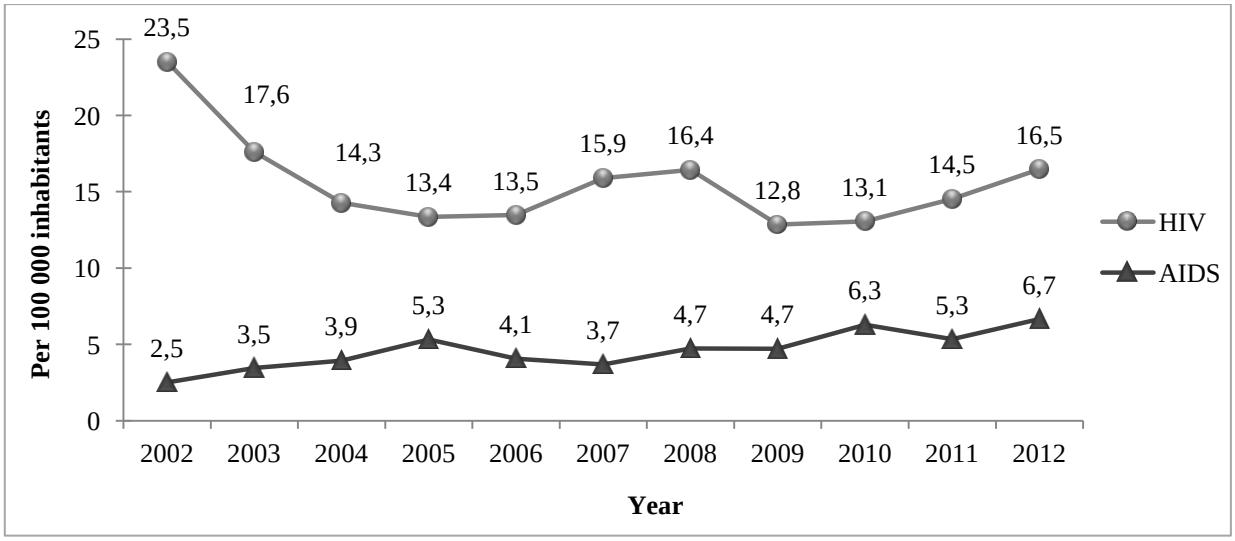


*Figure 44.* **HIV and AIDS incidence rates per 100,000 people (ICD code B20-B24)**
*Data source: SPKC, State Register of HIV/AIDS cases*
* The rate for 2012 has been calculated based on the average number of inhabitants in 2011

**Hepatitis B and C** (ICD-10 code B16; B17.1; B18.2) is one of the main causes of cirrhosis and liver cancer[4]. In Latvia, HBsAg has been encountered in about 2.3% of the population, while HCV prevalence is around 2% (HCV RNS - 1.7%, anti-HCV - 2.4%)[5]. However, in some groups of the population (for instance, users of injectable narcotic substances and prisoners), the proportion of infected persons is considerably higher, and this tendency may be observed throughout the world[6,7].

[1] European Centre for Disease Prevention and Control, *Annual Epidemiological Report 2012*. Stockholm: ECDC; 2013; 266p.
[2] State Register of HIV/AIDS cases. The Centre for Disease Prevention and Control of Latvia.
[3] European Centre for Disease Prevention and Control, *Annual Epidemiological Report 2012*. Stockholm: ECDC; 2013; 266p.
[4] European Centre for Disease Prevention and Control, *Annual Epidemiological Report 2012*. Stockholm: ECDC; 2013; 266p.
[5] Tolmane I., Rozentale B., Keiss J., *et al. The prevalence of viral hepatitis C in Latvia: a population-based study.* Medicina (Kaunas), 2011, Vol. 47, N. 10, pp. 532-535.
[6] Cohort research *Tendencies and habits of drug use in Latvia*. The Centre for Disease Prevention and Control of Latvia.
[7] Sniķere S., Kārkliņa I., Koroļeva I. et al. Spread of the use of narcotics at the places of imprisonment in Latvia. VEC, Riga 2010; 120 pp.

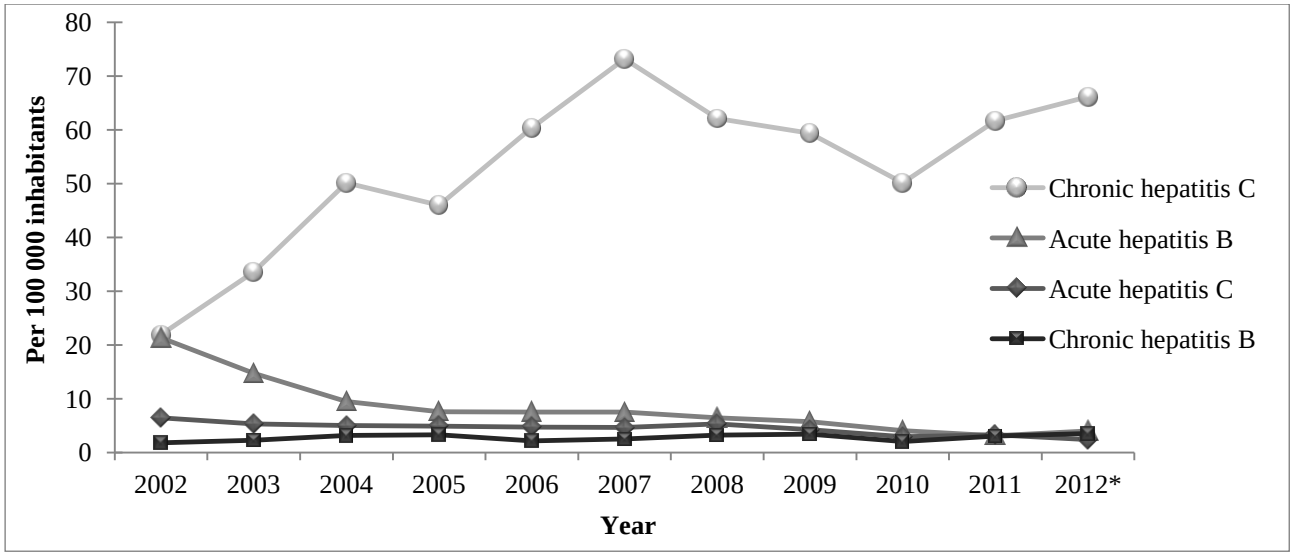


*Figure 45.* **Hepatitis B and C incidence rate per 100,000 people (ICD code B16; B17.1; B18.2)**

*Data source: CDPC, State infectious disease and monitoring system (VISUMS)*

* The rate for 2012 has been calculated based on the average number of inhabitants in 2011

Hepatitis B is a vaccine-preventable infection - at the beginning of 2013, a large part (over 90%) of children at the age below 14 were vaccinated against hepatitis B. Invention of vaccination considerably decreased acute hepatitis B incidence rate compared to 1997. A slight tendency of increase has been observed in chronic hepatitis B incidence rate during recent years.

Within the last ten years, incidence rate of acute hepatitis C has significantly decreased, while explicit tendency of increase in incidence rate of chronic hepatitis C has been observed, which, partly may be explained by improvements in diagnostics[1].

In Latvia, mandatory registration shall be applied to four **sexually transmitted infections (STI)**: syphilis (ICD-10 code A50-A53), gonococcus infection (gonorrhoea) (ICD-10 code A54), chlamydia caused sexually transmitted diseases, including *lymphogranuloma venereum* (ICD-10 code A55-A56), anogenital *Herpes Simplex* viral infection (ICD-10 A60). Within the last 10 years, STI incidence rate has increased by 52% - from 81 per 100,000 people in 2002 to 122 cases per 100,000 persons in 2012 (see Fig. 45). In 2002-2010, STI cases were more often registered among men rather than among women; however, the situation has changed gradually and in 2012, STI cases were registered among women more frequently.

Syphilis incidence rate shows a trend to decrease gradually[2].

Increase in urogenital chlamidiosis is mainly related to improvements in diagnostics and reporting system. However, incidence rates compared to other EU/EEA countries still suggests insufficient identification of the infection - *lymphogranuloma venereum* cannot be identified in Latvia.

Latvia has one of the highest (in 2010 - 15.3 per 100,000 people) gonorrhoea incidence rate among EU/EEA countries (10.4 per 100,000 people), taking the second place after Great Britain (30 per 100,000 people)[3]; rate values fluctuate over the years [4].

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[1] State infectious disease and monitoring system (VISUMS). The Centre for Disease Prevention and Control of Latvia.

[2] State infectious disease and monitoring system (VISUMS). The Centre for Disease Prevention and Control of Latvia.

[3] European Centre for Disease Prevention and Control, *Annual Epidemiological Report 2012*. Stockholm: ECDC; 2013; 266p.

[4] State infectious disease and monitoring system (VISUMS). The Centre for Disease Prevention and Control of Latvia.

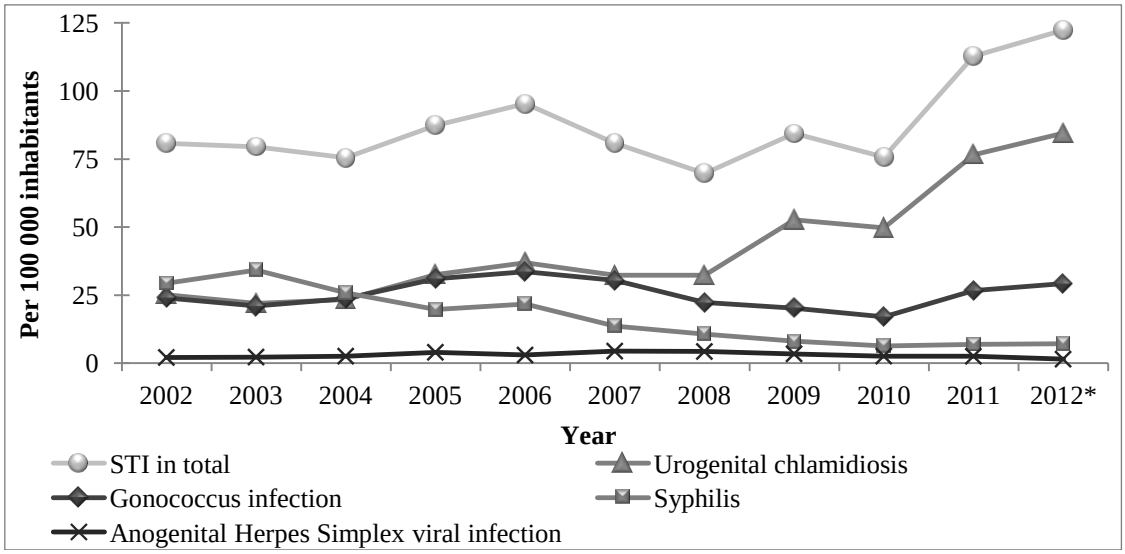


*Figure 46.* **STI incidence rate per 100,000 people (ICD code A50-A53; A54; A55-A56; A60)**
*Data source: CDPC, State infectious disease and monitoring system (VISUMS)*
* The rate for 2012 has been calculated based on the average number of inhabitants in 2011

In recent years, gonococcus resistance and multi-resistance to several antibiotics has become a significant healthcare issue in EU/EEA states, thus, choice of effective medications has decreased. In case of STI, significant problems may be caused by failure to treat the infection or uncontrolled use of antibacterial drugs, which frequently cause permanent consequences to health, for instance, infertility, as well as affect sexual and reproductive health in future.

## 9.4. Food, water and environmental factors-associated infectious diseases and zoonoses

Increase in incidence of various infectious diseases associated to hygienic conditions and quality of life may be observed during recent years. It shall be noted that the economic situation, as well as climate change, have a significant impact on distribution of several infectious diseases.

Since 2000, a stable increasing tendency in **acute enteric infections (AEI)** may be observed in Latvia. The highest morbidity rate over a period of the past 13 years was registered in 2011 - 11,942 patients or 576 cases per 100,000 people. In recent years, an explicit tendency of increase in morbidity rate of acute enteric infections having viral etiology may be observed; the highest morbidity rate was observed in 2011 - 5835 (284 per 100,000 people). Meanwhile, the morbidity rate of salmonellosis from 2000 to 2012 was unstable (the lowest - in 2004 (21.1 cases per 100,000 people), the highest - in 2008 (58.5 per 100,000 people)).

Unlike other EU Member States, diagnostics of acute enteric infections is not perfect in Latvia; for instance, in western Europe, incidence of campylobacteriosis is higher than that of salmonellosis, though, in recent years, only a few patients have been diagnosed with this illness in Latvia. Furthermore, enterohaemorrhagic *E. coli* infection in Latvia has never been identified, while on average 0.3-9.8 cases per 100,000 people are registered in other European countries. The situation may be explained by the fact that laws and regulations in Latvia do not provide for any funding for laboratory research of specific pathogens.

*Ixodes* ticks spread tick-borne encephalitis, lyme borreliosis, ehrlichiosis, tularemia, etc. pathogens. Annually, a comparatively high morbidity rate of two **tick-borne infections** - tick-

borne encephalitis (ICD-10 code A84) and Lyme borreliosis (ICD-10 code A69.2) is registered. During the last decade, cases of ehrlichiosis have been registered as well.

Although tendencies are unstable, since 2002, in general, increase in tick-borne encephalitis and Lyme borreliosis incidence rate may be observed (see Figure 46). The highest level of tick-borne encephalitis incidence within the past 13 years was observed in 2010: 494 patients or 24 cases per 100,000 people; in turn, in 2011 - the highest level of Lyme borreliosis incidence: 866 patients or 42 cases per 100,000 people[1].

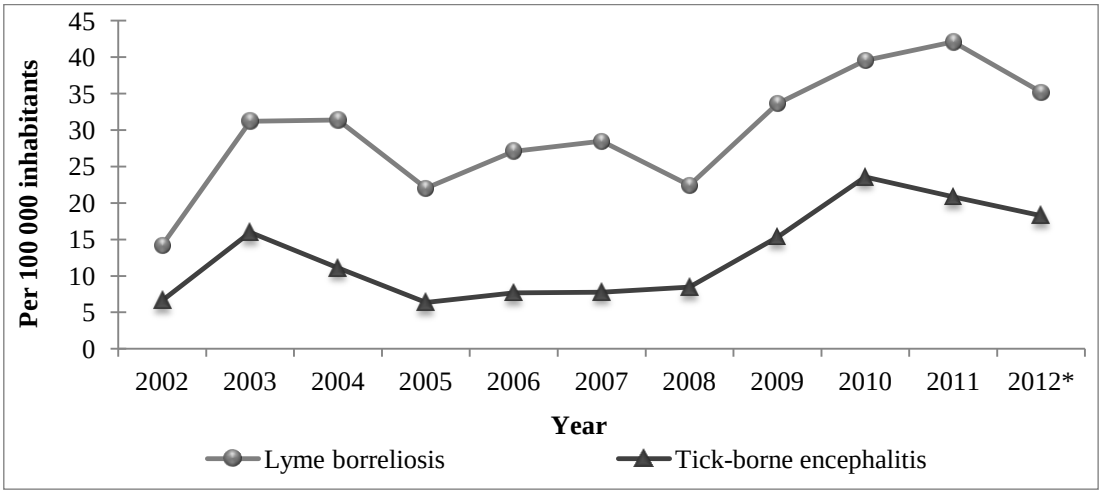


*Figure 47.* **Tick-borne encephalitis and Lyme-borreliosis incidence rate per 100,000 people (ICD-10 code A84; A69.2)**

*Data source: CDPC, State infectious disease and monitoring system (VISUMS)*

* The rate for 2012 has been calculated based on the average number of inhabitants in 2011

Although the level of tick-borne encephalitis incidence rate is influenced by improvements in diagnostic methods, frequency of contact with natural focus of infections among population, increase in information level on prevention of tick-borne infections, as well as the level of immunisation, tendencies of the incidence rate to a large extent are related to changes in tick activity and incidence within a longer period of time.

## 9. 5 Healthcare-associated infections and microbial resistance

Nosocomial or **healthcare-associated infections (HAI)** are infections, which occur on the third day after admission to the hospital or later, or before the third day, if the patient has undergone surgery within the first two days of hospitalisation or if an invasive device has been inserted and the infection is associated with these manipulations.

Information on HAI is summarised and analysed at the level of the medical treatment institutions only; monitoring of HAI is currently not carried out at the state level in hospitals in Latvia. The most widespread micro-organisms causing nosocomial infections are methicillin-resistant *Staphylococcus aureus* (MRSA), carbapenem-resistant *Acinetobacter baumannii* and gram-negative bacilli producing extended spectrum Beta-lactamases *(ESBL).*

Results of the study conducted in 2011 suggest that in accordance with definitions of ECDC, prevalence of HAI in Latvia is 2.3%, while in accordance with treatment indications - 3.9%, which is less than on average in the EU, and this can be explained by differences in treatment intensity. The most frequent nosocomial infections are pneumonias (20%) and

[1] State infectious disease and monitoring system (VISUMS). The Centre for Disease Prevention and Control of Latvia.

cutaneous, subcutaneous infections (19%). Similar results have been identified in previous studies[1].

Since 2007, information on all laboratory-approved cases of MRSA in hospitals of Latvia has been registered[2]. CDPC is duly notified on each case of MRSA. In 2007, 215 reports have been received, in 2008 - 209, in 2009 - 157, in 2010 - 205, in 2011 - 267. The procedure has been changed from 1 February 2012.

One of the main reasons of microbial resistance is use of anti-bacterial (AB) agents[3]. In Latvia, comparatively a low general use of AB has been observed - 12.8 DDD (defined daily dose per 1000 people); in the EU, it varies from 11.4-34.9 DDD (2010-2011). In turn, use of AB in hospitals in Latvia is one of the highest in the EU - 2.89 DDD (in the EU, 0.97-3.39 DDD). The third generation cephalosporins are used quite a lot in Latvian hospitals[4].

ECDC prevalence surveys show that the proportion of patients receiving AB in Latvian hospitals is 39% and it is higher than the average indicator in other EU Member States[5].

In Europe, issues associated with antimicrobial resistance are within the competence of the supervisory network ESAC-Net. Latvia (former - P. Stradiņš CUH; since 2013 - CDPC) is the member of the network since 2004. Information on seven invasive pathogens is summarised in the network: *S.aureus and S. pneumoniae, E.coli, K.pneumoniae, P. aeruginosa, E. faecalis, E.faecium.* Major issues of anti-microbial resistance in Europe are as follows:

1. Penicillin and erythromicine resistant *S. pneumoniae,*
2. Methicillin-resistant *S.aureus,*
3. Vancomycin resistant *S. aureus,*
4. Vancomycin resistant enterococcus,
5. Multi-resistant enterobacteria against ß lactam antibiotics (ESBL, AmpC lactamase), quinolones and aminoglycosides,
6. Multi-resistant *P.aeruginosa,* and
7. Carbapenem-resistant enterobacteria.

There is no single strategy to facilitate reasonable use of AB in healthcare institutions, which is one of the pre-conditions for microbial resistance control.

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[1] Prevalence Survey of Healthcare-Associated Infections and Antimicrobial Use (ECDC PPS), European Centre for Disease Prevention and Control.

[2] Cabinet Regulations No.7 *Procedures for Registration of Infectious Diseases*; 05.01.1999.

[3] Summary of latest data on antibiotic consumption in the European Union, European Centre for Disease Prevention and Control, 2011, 4p.

[4] ESAC-Net, European Centre for Disease Prevention and Control, http://app.esac.ua.ac.be/public/ (viewed 10.06.2013).

[5] Prevalence Survey of Healthcare-Associated Infections and Antimicrobial Use (ECDC PPS). European Centre for Disease Prevention and Control.

# 10. DIABETES MELLITUS

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According to the estimates of the International Diabetes Federation, 35 million adults in Europe have been diagnosed with diabetes mellitus in 2011, and it is expected that 43 million people will be diagnosed with diabetes mellitus in 2030 (increase by 23%). The calculated prevalence of diabetes mellitus between states differs and varies from 2.8% in Albania to 9.8% in Portugal[1]. In Latvia, at the end of 2012, the prevalence of diabetes mellitus was 3.8% (79,122 patients)[2]. Around the world, increasingly younger people are diagnosed with diabetes mellitus; furthermore, along with improvements of the quality of healthcare system, total duration of illness increases, thus, the total number of diabetes mellitus patients or prevalence increases. Every year, the prevalence rate increases in Latvia as well. Since 2000, it has increased more than two times: from 9.1 to 28.7 per 100,000 people in 2012[3]. In Latvia, on average 7200 new diabetes mellitus patients are registered annually; about 96% of them are type 2 diabetes mellitus patients (see Fig. 48). The average age of patients at the moment of diagnosis is 62 years[4].

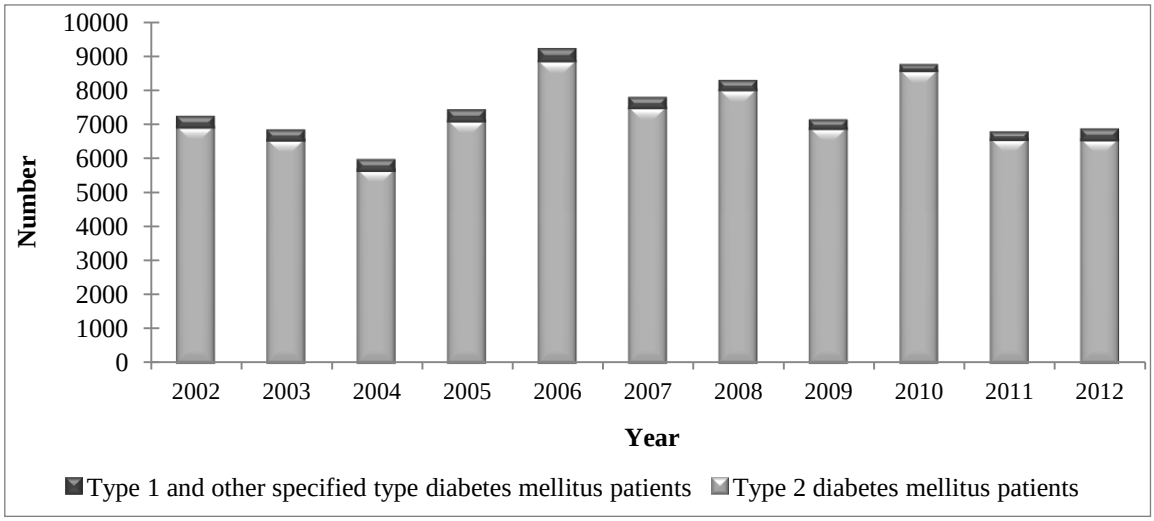


*Figure 48.* **Number of primarily registered patients distributed by the type of diabetes mellitus in dynamics (ICD-10 code E10+E12-14; E11)**
*Data source: CDPC, The register of patients with particular diseases, patients with diabetes mellitus.*

Burden of chronic diseases, including type 2 diabetes mellitus, in Europe is mainly due to risk factors, which may be influenced: nutrition, physical activities, use of alcohol and smoking. However, there exist some type 2 diabetes mellitus risk factors that cannot be influenced. Age is one of the non-preventable risk factors, and in ageing populations, including Latvia, number of individuals with type 2 diabetes mellitus will continue to increase[5]. Currently, in Latvia, the

[1] The diabetes epidemic and its impact on Europe. Organisation for Economic Co-operation and Development, 2012, 44 p.
[2] The register of patients with particular diseases, patients with diabetes mellitus. The Centre for Disease Prevention and Control of Latvia.
[3] Rozīte S., Strēle I., Briģis Ģ. *Cukura diabēta prevalences rādītāji Latvijā 2000.-2009.gads.* Thesis at RSU scientific conference, 2011.
[4] The register of patients with particular diseases, patients with diabetes mellitus. The Centre for Disease Prevention and Control of Latvia.
[5] The diabetes epidemic and its impact on Europe. Organisation for Economic Co-operation and Development, 2012, 44 p.

highest prevalence rates may be observed for people in the age group of 70-74 and 75-79 (119 and 130 per 100,000 inhabitants, respectively)[1].

Obesity shall be considered one of significant diabetes mellitus risk factors. Obesity (BMI≥30 kg/m$^2$) is associated with seven times higher, and overweight (25 kg/m$^2$<BMI <30 kg/m$^2$) - with three times higher type 2 diabetes mellitus risk, comparing to normal weight. Moreover, people with BMI above 35 kg/m$^2$ have even 60 times higher diabetes mellitus development risk, compared to people with normal body weight[2]. In 2012, 70% of the primarily registered type 2 diabetes mellitus patients had overweight or obesity in Latvia (17% of patients with BMI ≥25 and <30 kg/m$^2$ and 53% of patients with BMI ≥30 kg/m$^2$). Since 2000, the proportion of primarily registered type 2 diabetes mellitus patients with obesity has increased by five percentage points; in 2000, 65% patients had overweight or obesity (22% and 43% respectively)[3].

Along with age, the risk of concomitant diseases of diabetes mellitus increases as well. It has been established that in Western Europe, the risk of concomitant diseases increases twice to diabetes mellitus patients at the age of 64 years, while at the age above 80 - it increases four times[4]. Type 2 diabetes mellitus is associated with an increased risk of malignant neoplasms, in particular, formations with specific localisation[5]. In Latvia, upon analysing the proportion of the standard cancer incidence in diabetes mellitus population comparing to general population, it has been established that diabetes mellitus patients have 1.16 times higher risk of malignant neoplasms rather than that of the general population. In Latvia, diabetes mellitus patients have higher possibility of pancreatic, colorectal, breast, uterus and prostate cancer[6]. In turn, an interesting fact is that unlike in other countries, in Latvia, total death rates from malignant neoplasms in type 2 diabetes mellitus population and in general population have no significant difference[7]. Probably, this difference from other countries is due to the fact that the population in Latvia is inert in visiting doctor; in turn, if the patient has been diagnosed with diabetes mellitus and malignant formation, he/she visits doctor more often receiving a more adequate care than those people who fail to apply for aid.

Diabetes mellitus patients may face changes in various organ systems as complications of the disease, frequently causing very serious health issues. Diabetic retinopathy is one of the most common complications. In Latvia, it has been registered to 18% of type 1 diabetes mellitus patients, to 7% - type 2 patients[8]. Furthermore, diabetic nephropathy (which may cause kidney failure), as well as diabetes mellitus-caused neural and vascular damages, which is the most frequent accident and trauma non-related cause for leg amputation, may be considered as some of the most widespread complications. It is possible that diabetes mellitus-caused complications may be even more frequent, but not all cases are registered. Furthermore, risk factors affecting

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[1] Rozīte S., Strēle I., Briģis Ģ. *Cukura diabēta prevalences rādītāji Latvijā 2000.-2009.gads.* Thesis at RSU scientific conference, 2011.

[2] The diabetes epidemic and its impact on Europe. Organisation for Economic Co-operation and Development, 2012, 44 p.

[3] The register of patients with particular diseases, patients with diabetes mellitus. The Centre for Disease Prevention and Control of Latvia.

[4] The diabetes epidemic and its impact on Europe. Organisation for Economic Co-operation and Development, 2012, 44 p.

[5] Coughlin S.S., Calle E.E., Teras L.R., *et al*. Diabetes mellitus as a predictor of cancer mortality in a large cohort of U.S. adults. *American Journal of Epidemiology*, 2004, Vol. 159, pp. 1160–1167.

[6] Rozīte S., Strēle I., Briģis Ģ. *Incidence of malignant tumours in the population of diabetes mellitus (Ļaundabīgo audzēju incidence cukura diabēta populācijā)*. Riga Stradins University, 2011; Collected scientific articles.

[7] Pildava S., Strēle I., Briģis Ģ. *Mortality from malignant tumours to type 2 diabetes mellitus patients in 2002-2011 in Latvia, compared to corresponding general population indicators (Mirstība no ļaundabīgajiem audzējiem 2. tipa cukura diabēta pacientu populācijā 2002.–2011. gadā Latvijā salīdzinājumā ar atbilstošiem vispārējās populācijas rādītājiem).* Riga Stradins University, 2012; Collected scientific articles.

[8] The register of patients with particular diseases, patients with diabetes mellitus. The Centre for Disease Prevention and Control of Latvia.

the development of diabetes mellitus complications are associated with unhealthy lifestyle (obesity, unhealthy food, insufficient physical activity), as well as with healthcare factors, for instance, late diagnostic of diabetes mellitus, insufficient knowledge of the patient on their care and limited access to healthcare[1;2].

In general, it shall be taken into account that along with the increase in life span and ageing of population, the number of type 2 diabetes mellitus patients in Latvia, similar to other European countries, will continue to grow. Since ageing of the population cannot be easily influenced, particular attention shall be paid to early diagnostic of diabetes mellitus. In 2011, 42 million people, i.e. 9.5% of the total population of Europe, suffered from glucose tolerance disorder in Europe, and it is expected that in 2030 this number will increase to 49 million, i.e. 15% of the population. During health check-ups, non-diagnosed cases of diabetes mellitus or patients with high risk of disease development may be identified, allowing to start early treatment or to take preventive measures[3]. In Latvia, diet as the initial therapy was prescribed only to 15% of all newly registered type 2 diabetes mellitus patients in 2012; to 78% - oral anti-diabetic medications; to 5% - insulin therapy; to 2% - combined therapy (oral anti-diabetic medications and insulin)[4]. The distribution per types of initial therapy demonstrates that treatment of the majority of the primarily diagnosed diabetes mellitus patients begins with medications to achieve the treatment objective. Early diagnostics and treatment of diabetes mellitus is the only way for the patient to prevent or slow down diabetes mellitus-associated late complications and to ensure a better quality of life.

[1] Vermunt P.W., Milder I.E., Wielaard F., *et al.* A lifestyle intervention to reduce Type 2 diabetes risk in Dutch primary care: 2.5-year results of a randomized controlled trial. *Diabetic Medicine: A Journal Of The British Diabetic Association*, 2012, Vol. 29, N. 8, pp. e223-231.

[2] Bachmann M.O., Eachus J., Hopper C.D., *et al.* Socio-economic inequalities in diabetes complications, control, attitudes and health service use: a cross-sectional study. *Diabetic Medicine*, 2003, Vol. 20, N. 11, pp. 921-929.

[3] The diabetes epidemic and its impact on Europe. Organisation for Economic Co-operation and Development, 2012, 44 p.

[4] The register of patients with particular diseases, patients with diabetes mellitus. The Centre for Disease Prevention and Control of Latvia.

# 11. HEALTH OF MOTHER AND CHILD

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## *11.1. Reproductive health of population*

Birth rate is one of the most significant indicators of the health of the society. Within the past 12 years, the highest birth rate level in Latvia was reached in 2008[1]. Birth rate (per 1000 inhabitants) in Latvia in 2007 and 2008 was close to the average birth rate in the EU (>10). However, due to the economic crisis, the number of newborns decreased sharply. In 2010, the birth rate in Latvia was the second lowest in the EU after Germany[2]. In 2012, increase in birth rate was observed once again both per 1000 inhabitants (see Fig. 49) and in absolute numbers - 19.9 thousand newborns.

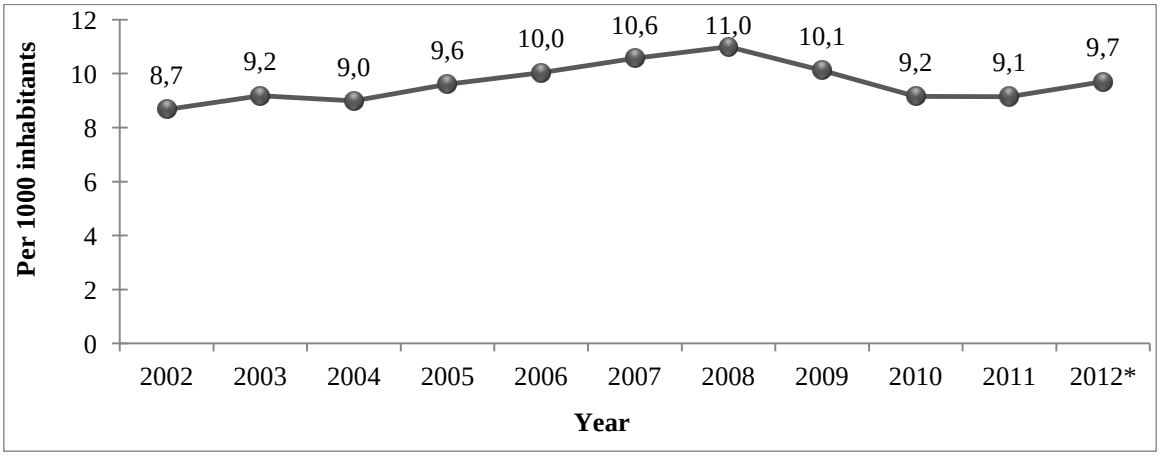


*Figure 49.* **Birth rate per 1000 inhabitants**
*Data source: Central Statistical Bureau of Latvia*
* Data for 2012 calculated per average number of population in 2011

In recent years, there is a tendency of increase in the age of women giving birth to their first child (in 2012 - 26.6 years) and women giving repeated birth (in 2012 - 29.3 years)[3]. About 15% of women who are about to give a birth are over 35 years[4]. Annually, 200-300 newborns or 1.5%-2% of all newborns are born to mothers below the age of 18 in Latvia. Since 2009, the number of children born to under-age mothers has decreased; during the last three years, this rate decreased below two hundred newborns. Furthermore, pregnancies at the age below 14 are registered every year. It should be pointed out that a large part of all pregnancies among adolescents below the age of 17 are terminated (in 2007 - 327 newborns and 413 artificial abortions, in 2012 - 271 and 136 respectively)[5,6]. Although certain improvement in these rates may be observed, this situation, however, demonstrates the necessity of a health curriculum at schools, the necessity to improve the availability of youth-friendly healthcare services, as well as

[1] Data from the Central Statistical Bureau of Latvia.
[2] European Health for All Database (HFA-DB), WHO. URL: http://data.euro.who.int/hfadb/ (viewed 03.06.2013).
[3] Data from the Central Statistical Bureau of Latvia.
[4] Newborns Register. The Centre for Disease Prevention and Control of Latvia.
[5] State statistical report *Report about antenatal care, abortions and contraception*. The Centre for Disease Prevention and Control of Latvia.
[6] Newborns Register. The Centre for Disease Prevention and Control of Latvia.

indicates to informative and economic barriers for the use of contraception[1]. Topicality of this issue is demonstrated also by the data of the study conducted in 2010, namely, that every fifth school-child at the age of 15 has had sexual relationship, but only 77% partners of boys and 84% partners of girls partners used a condom during the last intimacy. Dynamic progress of indices of sexual relationship and use of a condom does not change significantly[2].

The most popular method of contraception among adults (15-49 years) is male condoms (also among women), interrupted intercourse and only then, hormonal and intrauterine contraception, as well as the calendar method (see Fig. 50)[3].

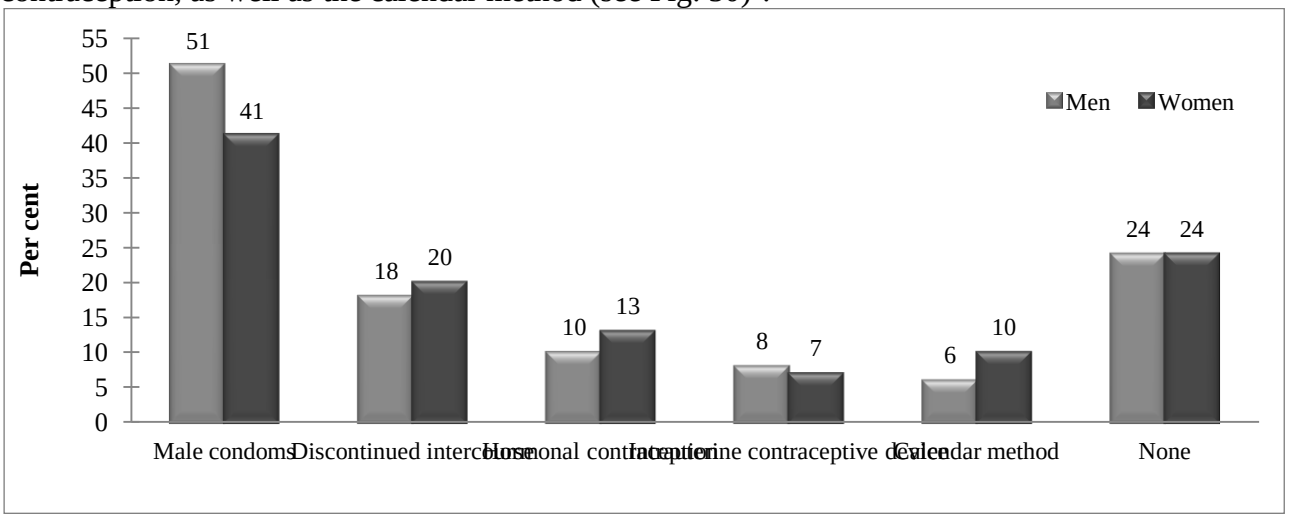


*Figure 50.* **Habits of contraception method use, 2011, proportion in per cents**
*Data source: Study of reproductive health in population*

Globally, **infertility** should be considered a significant reproductive health issue. In Europe, this issue is encountered by 10%-15% of couples[4]. In Latvia, the total number of infertile couples has not been identified; however, in February 2012, the Infertility Register (maintained by the National Health Service) has begun its operation, accounting all infertile couples, aiming to identify individuals requiring state support programme for the treatment of infertility. In Latvia, on average 1100 extracorporeal insemination procedures have been carried out resulting in birth of about 200-300 children per year[5]. Currently, registration of infertile couples is continued, thus, the data available on infertility in Latvia are incomplete[6].

## *11.2. Pregnany care and labour*

Indices of pregnancy care have not changed considerably in recent years. The proportion of women having received no antenatal care varies at the rate of 2% every year. The fact that in 2011 the proportion of women having received no antenatal care decreased below 2% and in 2012 remained at the level of 1.6% should be assessed positively[7]. The proportion of pregnant

[1] Štāle M., Skrule J. Health of the population of Latvia. The Centre for Disease Prevention and Control, 2012, 112 p.
[2] Health Behaviour Survey in School-aged Children (HBSC). The Centre for Disease Prevention and Control of Latvia.
[3] Putniņa A. *Reproductive health of inhabitants. Report on situation in Latvia in 2003-2011. (Iedzīvotāju reproduktīvā veselība. Pārskats par situāciju Latvijā 2003-2011).* Papardes zieds, 2011, 79 pp.
[4] *Infertility: a tabulation of available data on prevalence of primary and secondary infertility*. World Health Organizations, 1991, 73 p.
[5] Cabinet Order No. 269 *Maternal and child health improvement plan for 2012-2014*; 19.06.2012.
[6] Štāle M., Skrule J. *Health of the population of Latvia*. The Centre for Disease Prevention and Control of Latvia, 2012, 112 pp.
[7] State statistical report "Report about antenatal care, abortions and contraception". The Centre for Disease Prevention and Control of Latvia.

women having received care before week 12 in recent years is slightly lower than in 2006-2008; however, already since 2002, it has been above 90%[1].

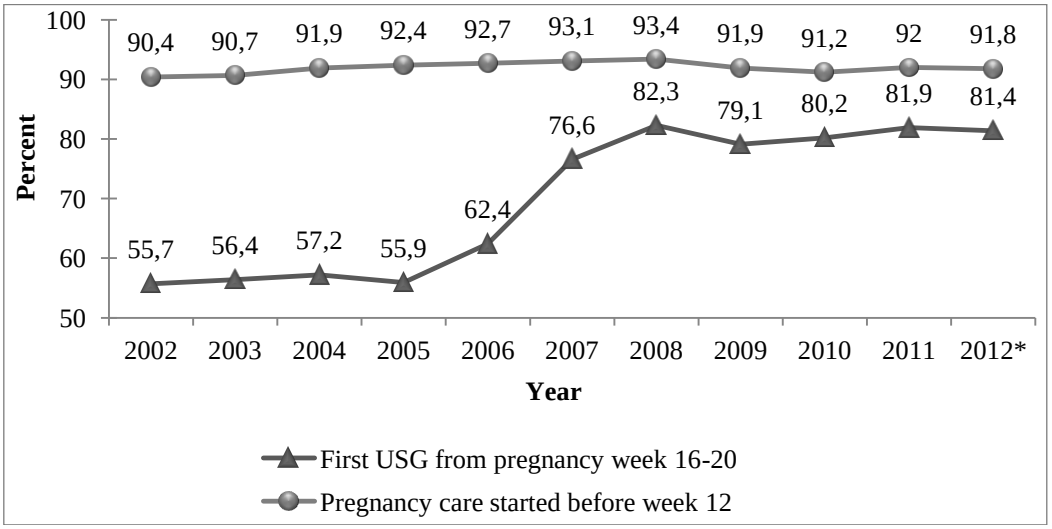


*Figure 51.* **Pregnant women healthcare rate, proportion in per cent**
*Data source: CDPC, State statistical report "Report about antenatal care, abortions and contraception"*

Rates of the first USG increase in dynamics; however, statistics reflect only those ultrasound procedures carried out from week 16 to 20. Thus, the actual proportion of ultrasound procedures carried out until week 20 is higher.

The number of extra-uterine pregnancies per 1000 live births has decreased over a period from 2000 to 2012 by 46% (34.3 in 2000; 18.4 in 2012).

Risk of pregnancy discontinuation in 2012 had ~13% of women. Since 2002, the proportion of those women, experiencing the risk of pregnancy discontinuation has decreased, reaching the lowest rate in 2006 and remaining stable afterwards[2]. This tendency may be due to the improvement of competencies of pregnant women in relation to the course of labour, as well as due to improvement of antenatal care[3].

Annually, the time spent in hospital by the woman in labour and the newborn decreases (average number of days per one woman in labour) - from six days in 2000 to four days in 2012.

In recent years, the number of planned out-hospital labours has increased (in 2007 - 45; in 2012 - 199). The proportion of such labours in the total number of labours is comparatively small - 1%, though, it increases every year[4].

The proportion of multi-foetus births in Latvia shows a tendency of slight increase, and such tendency may be observed in the entire Europe[5]. In 2012, in Latvia, 1.3% (249 births) of all were multi-foetus births [6] (see Fig. 52). One of the main reasons for the increase in the number of multi-foetus births is the increase in the average maternal age[7]. Other factors causing multi-

[1] State statistical report "Report about antenatal care, abortions and contraception". The Centre for Disease Prevention and Control of Latvia.
[2] State statistical report *"Report about antenatal care, abortions and contraception"*. The Centre for Disease Prevention and Control of Latvia.
[3] Štāle M., Skrule J. Health of the population of Latvia. The Centre for Disease Prevention and Control of Latvia, 2012, 112 pp.
[4] State statistical report *"Report on hospital operation"*. The Centre for Disease Prevention and Control of Latvia.
[5] European perinatal health report. EURO-PERISTAT Project, with SCPE, EUROCAT, EURONEOSTAT, 2008, 282 p.
[6] Newborns Register. The Centre for Disease Prevention and Control of Latvia.
[7] Jones H.W., Schnorr J.A. Multiple pregnancies: a call for action. *Fertility and Sterility*, 2001, Vol. 75, pp. 11-13.

foetus pregnancies - continuous use of hormonal contraception and treatment of infertility[1]. Annually, in Latvia, triplet labours are registered (on average, 2-5, in 2012 - 4)[2].

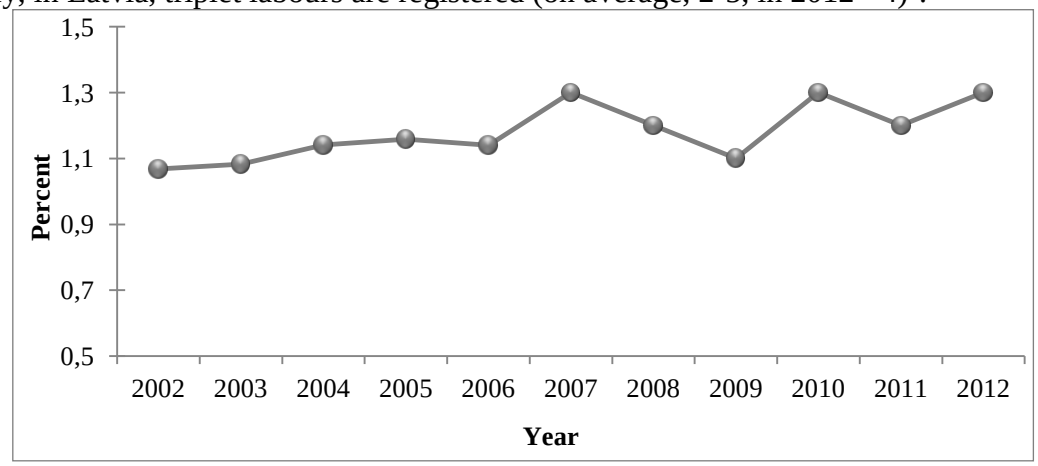


*Figure 52.* **Multi-foetus births, proportion in all births in per cent**
*Data source: CDPC, data from the Newborns Register*

In Latvia, similar to other EU Member States, the number of Caesarean section increases. The highest proportion of Caesarean section is in Italy and Portugal (30%), while the lowest - in THE Netherlands, Slovenia (<15%)[3], average in the EU - around 25%[4]. The total proportion of Caesarean sections in Latvia annually is over 20% from all births (see Fig. 40). Furthermore, acute Caesarean section has increased in dynamics. In 2012, the proportion of the planned Caesarean sections has slightly decreased, increasing the proportion of natural birth respectively[5].

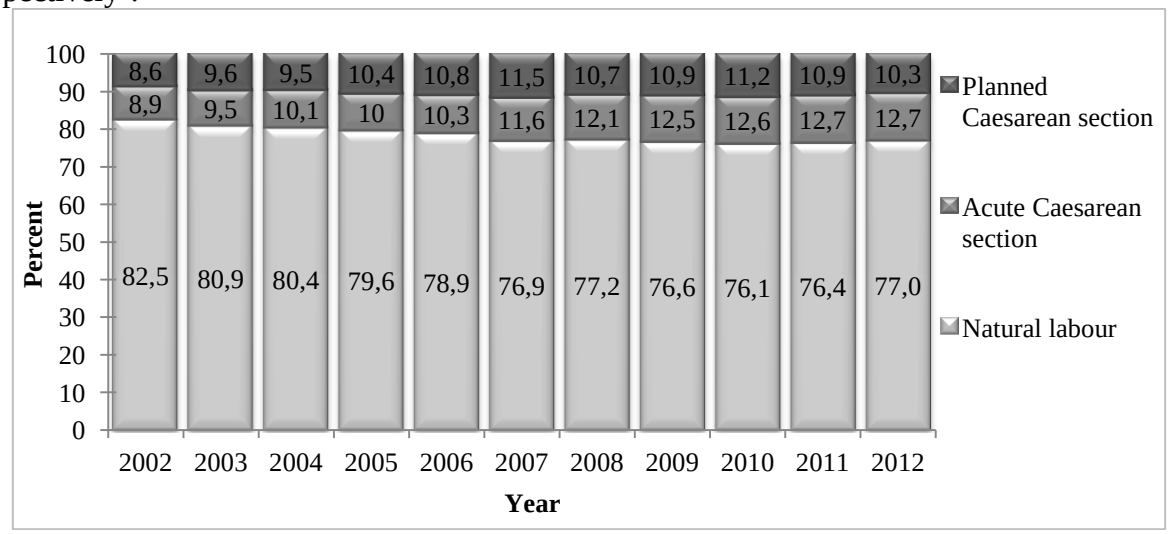


*Figure 53.* **Proportion of Caesarean section of all births, per cent**
*Data source: CDPC, data from the Newborns Register*

[1] Blondel B., Macfarlane A.J., Gissler M., *et al*. Preterm birth and multiple pregnancy in European countries participating in the PERISTAT project. *International Journal of Obstetrics and Gynaecology*, 2006, Vol. 113, N. 5, pp. 528-535.
[2] Newborns Register. The Centre for Disease Prevention and Control of Latvia.
[3] European perinatal health report. EURO-PERISTAT Project, with SCPE, EUROCAT, EURONEOSTAT, 2008, 282 p.
[4] European Health for All Database (HFA-DB), WHO. URL: http://data.euro.who.int/hfadb/ (viewed int. 04.06.2013).
[5] Newborns Register. The Centre for Disease Prevention and Control of Latvia.

Compared to the other two Baltic States, Latvia has the highest number of Caesarean sections (per 1000 live births); however, it is still ~20% lower than on average in the EU[1].

Annually, 0.6-0.7% newborns are stillborn. The dynamic rate of stillborn children (per 1000 live births and stillborn) is variable, but, when assessing the general trend since 2002, it decreases slightly (see Fig. 54)[2].

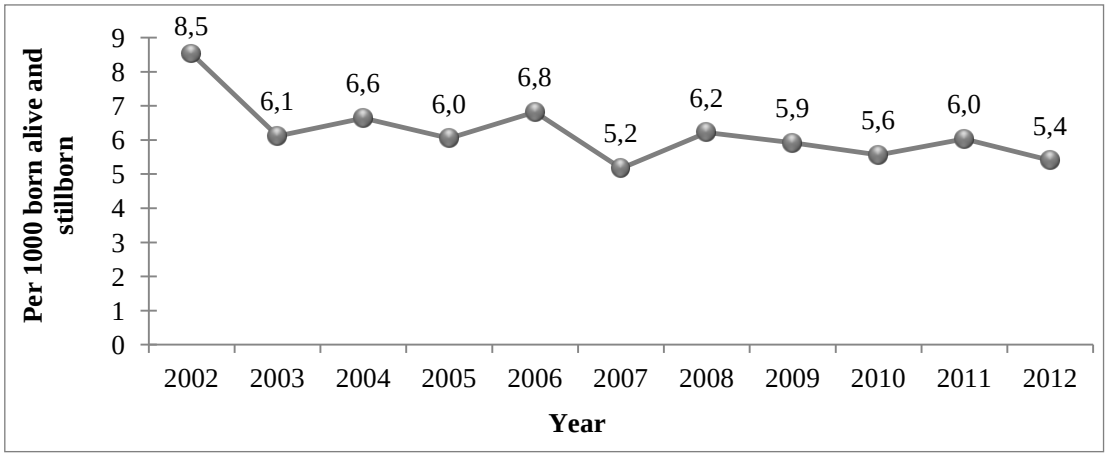


*Figure 54.* **Stillbirths, per 1000 born alive and stillborn**
*Data source: CDPC, Data from the Newborns Register*

Compared to the other two Baltic States, Latvia has the highest rates of stillbirths, and it is by 40% higher than on average in the EU[3].

## *11.3. Abortions*

The number of abortions (both absolute and relative) continues to decrease. Within the last decade, the rate of abortions per 1000 live births has decreased significantly (by 57%) - from 734 in 2002 to 317 in 2012[4]. However, compared to the average rate in EU Member States, it is still very high in Latvia (see Fig. 55)[5].

[1] European Health for All Database (HFA-DB), WHO. URL: http://data.euro.who.int/hfadb/ (viewed int. 04.06.2013).
[2] Newborns Register. The Centre for Disease Prevention and Control of Latvia.
[3] European perinatal health report. EURO-PERISTAT Project, with SCPE, EUROCAT, EURONEOSTAT, 2008, 282 p.
[4] State statistical report *"Report about antenatal care, abortions and contraception"*. The Centre for Disease Prevention and Control of Latvia.
[5] European Health for All Database (HFA-DB), WHO. URL: http://data.euro.who.int/hfadb/ (viewed int. 14.06.2013).

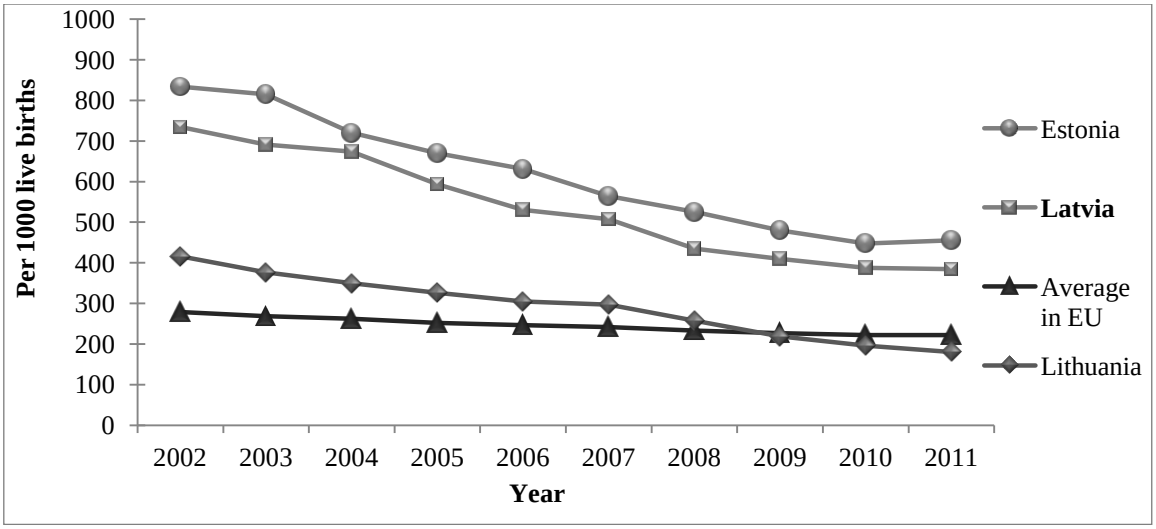


*Figure 55.* **Number of artificial abortions in EU Member States, per 1000 live births**
*Data source: WHO, European Health for All database*

In 2012, the proportion of terminated first pregnancy (of all abortions) among women under 49 was 8.8%. When assessing dynamics, this rate during the last three years has decreased; it had an increasing tendency until 2008. However, the proportion of the first pregnancy among girls below the age of 17 remains stable - 65%-70% every year[1].

## *11.4. Maternal death*

In developed countries, including Latvia, any maternal death is considered preventable, though, despite the development of modern technologies, up to one thousand women in Europe pass away while giving birth or after[2]. The situation in EU Member States is very different. Furthermore the data obtained every year differs considerably as well - in 2011, this rate (per 100,000 live births) on average in the EU was 5.8[3]. Cases of maternal death are registered every year also in Latvia (see Fig. 56). The rate of maternal death in small countries, including Latvia, is very diverse - since the number of live births is relatively low, this rate (calculated per 100,000 live births) is greatly affected by every case of maternal death. Maternal death in absolute figures represents the situation in Latvia more accurately.

[1] State statistical report *"Report about antenatal care, abortions and contraception"*. The Centre for Disease Prevention and Control of Latvia.
[2] European perinatal health report. EURO-PERISTAT Project, with SCPE, EUROCAT, EURONEOSTAT, 2008, 282 p.
[3] European Health for All Database (HFA-DB), WHO. URL: http://data.euro.who.int/hfadb/ (viewed int. 14.06.2013).

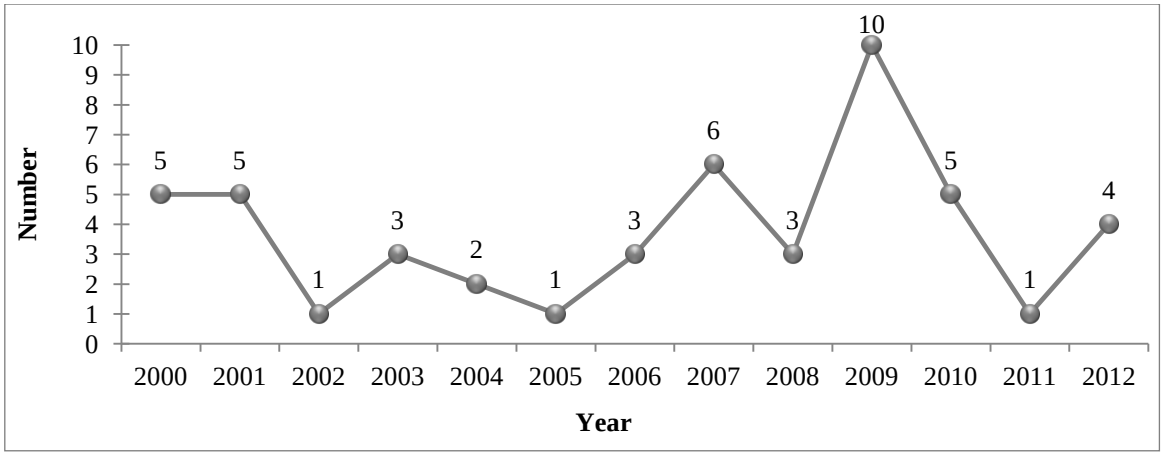


*Figure 56.* **Maternal mortality rate, absolute numbers**
*Data source: CDPC, Database of causes of death in population of Latvia*

Thus, it may be considered that if the number of maternal deaths does not exceed 2-3 cases per year, this rate is close to the average index in the EU.

Since 2000, causes of maternal death directly associated with pregnancy have been different: abortions (including criminal ones), extra-uterine pregnancy, amniotic embolism, flebotrombosis, bleeding, toxicosis, eclampsy, etc. Furthermore, it shall be taken into account that in some cases maternal death may not be directly associated with pregnancy, for instance, it is caused by oncology or influenza. However, in the reporting period, only three years - 2004, 2005 and 2011 - cases of maternal death were not directly associated with pregnancy[1].

## *11.5. Health of children*

**Proportion of practically healthy newborns** (health group 1) dynamically increases, reaching 60%. A positive trend - a slight decrease in the proportion of newborns with chronic diseases (health group 3) every year - from 3.9% in 2002 to 2.9% in 2012 (see Fig. 57).

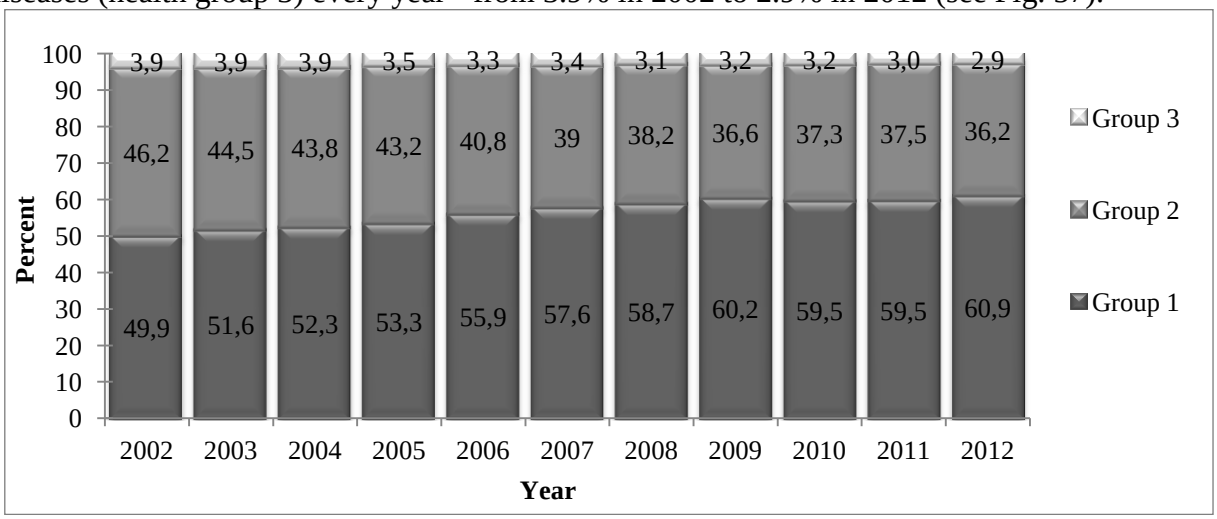


*Figure 57.* **Distribution of newborns by health groups, in dynamics, proportion in per cent**
*Data source: CDPC, data from the Newborns Register*

[1] Cabinet Order No. 269 *Maternal and child health improvement plan for 2012-2014*; 19.06.2012.

Every year around 5% of children (of live births) are born with weight below 2500 grams. Low weight at birth generally is due to premature birth (until week 37) - half of premature newborns have weight of less than 2500 grams.

Newborns with low weight at birth are subject to a greater risk of death during neonatal and postneonatal periods. Overall 5% of live births with weight below 2500 grams pass away within the first six days, which is approximately half (50%-60%) of all newborns having passed away during the first six days; proportion of children surviving until the age of one year is ~90%[1].

Diseases and various symptoms to **premature birth infants** (premature birth infants with weight below 2500 grams) - intrauterine hypoxia or asphyxia, respiratory distress, slow growth, malnutrition, trauma at labour, inborn anomalies - are encountered more often than to full term infants[2]. Premature birth infants have a higher risk of the development of various health disorders at a later stage, for instance, syndrome of sudden death, cerebral stroke, vision issues, cardiovascular diseases, acute respiratory infections, learning disabilities[3].

WHO recommends feed children only with breast-milk until the age of six months (exclusive breast-feeding)[4]. The proportion of breast-fed newborns in maternity institutions has slightly decreased in recent years (see Fig. 58)[5], which may be explained by ceasing of the initiative of *Baby-friendly hospitals* in Latvia, which was implemented until 2009.

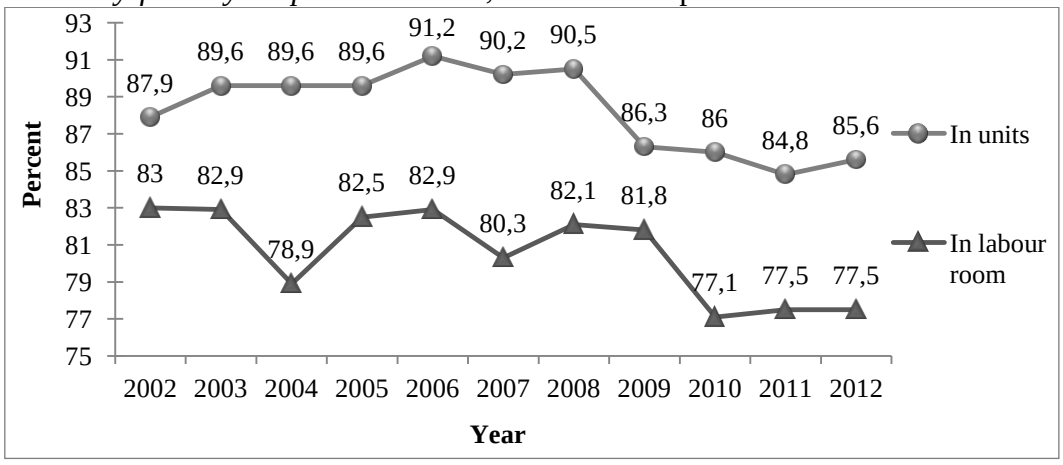


*Figure 58.* **Breast-feeding of newborns in maternity institution, proportion in per cent**
*Data source: CDPC, data from the Newborns Register*

In 2012, around 77% of infants until the age of three months and 54% until the age of six months were breast-fed. These rates increase in dynamics[6].

At the age of one year, only 62% of babies were **practically healthy**. In further age groups, the proportion of healthy children is smaller; at the age of 15-17 years, only 54% are healthy. Since 2002, the proportion of practically healthy children at the age of one year has increased; however, the proportion of practically healthy adolescents (15-17 years) has been decreasing since 2008 (see Fig. 59).

[1] Newborns Register. The Centre for Disease Prevention and Control of Latvia.
[2] Newborns Register. The Centre for Disease Prevention and Control of Latvia.
[3] European perinatal health report. EURO-PERISTAT Project, with SCPE, EUROCAT, EURONEOSTAT, 2008, 282 p.
[4] Baby-Friendly Hospital Initiative. WHO, UNICEF, 2009.
[5] Newborns Register. The Centre for Disease Prevention and Control of Latvia.
[6] State statistical report *"Report on the state of health in children"*. The Centre for Disease Prevention and Control of Latvia.

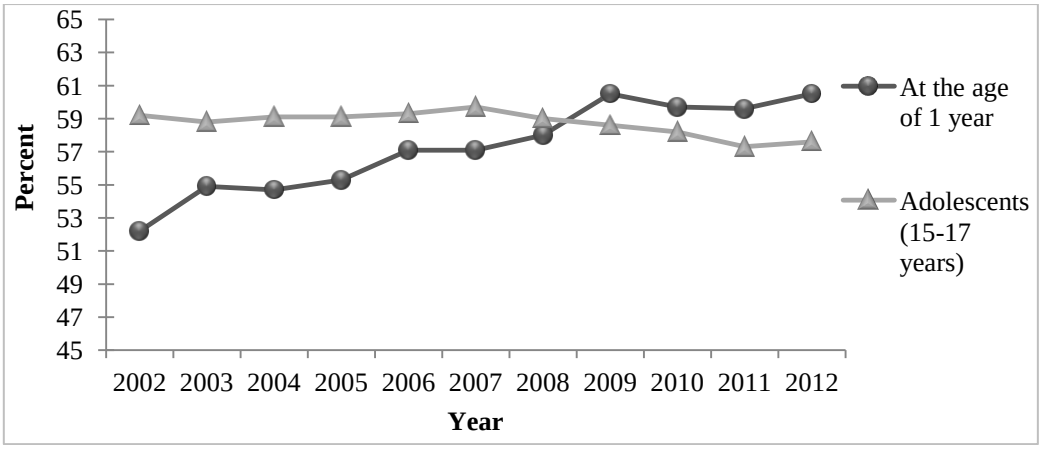


*Figure 59.* **Proportion of practically healthy children, per cent**
*Data source: CDPC, State statistical report "Report on the state of health in children"*

The main health disorders among adolescents are posture disorders (~14%), poor vision (~13%)[1]. In dynamics, these rates are increasing, which may be explained by immobile lifestyle, long hours spent in front of a computer and TV. A large part of issues specific to adolescents (posture, vision) are discovered already in Form 1.

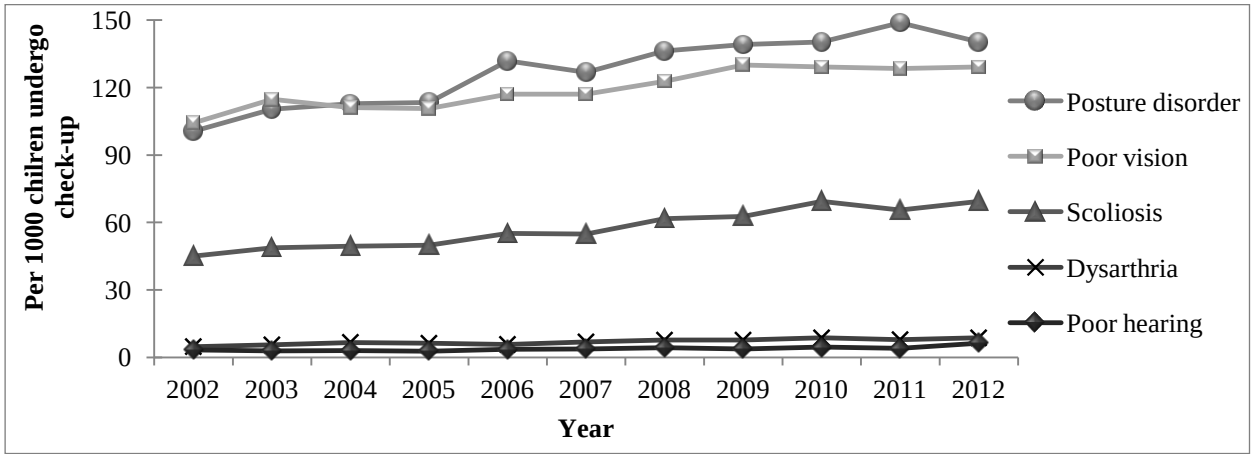


*Figure 60.* **Results of preventive check-ups among adolescents at the age of 15-17 years, per 1000 children undergone a check-up**
*Data source: SPKC, State statistical report "Report on the state of health in children"*

**Mortality rate among children** in the first year of life is significantly higher than that in other age groups. Infant mortality rate has decreased in dynamics; it has been constantly changing in recent years. In 2011 and 2012, early neonatal mortality rate has slightly increased (see Fig. 61)[2].

[1] State statistical report *"Report on the state of health in children"*. The Centre for Disease Prevention and Control of Latvia.
[2] Data from the the register of causes of death among the inhabitants of Latvia. The Centre for Disease Prevention and Control of Latvia.

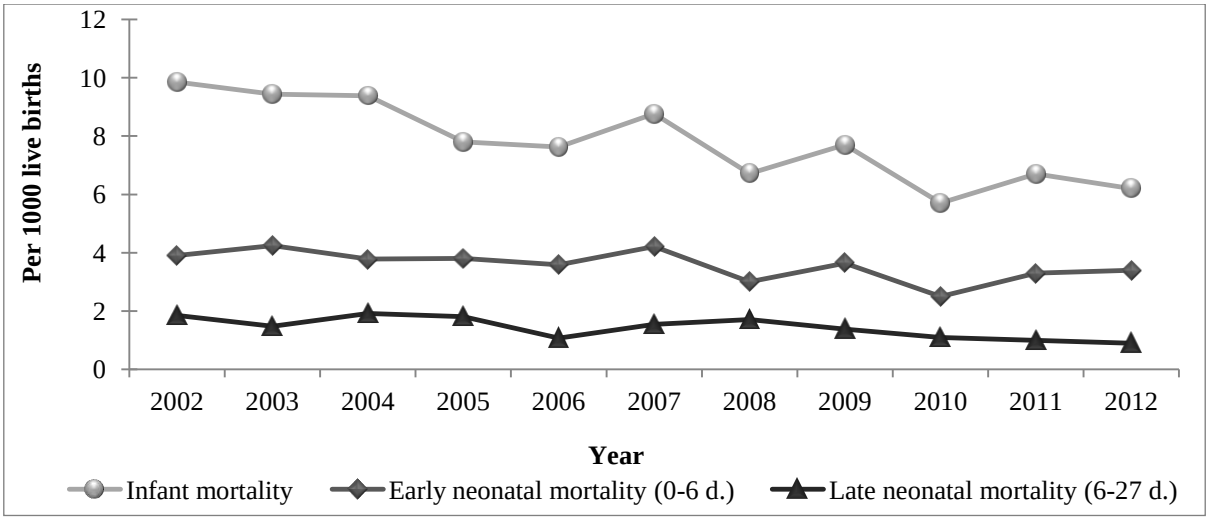


*Figure 61.* **Newborn mortality rate, per 1000 live births**
*Data source: CDPC, the register of causes of death among the inhabitants of Latvia*

Despite the decrease in infant mortality rate, Latvia has the highest infant mortality rate among the Baltic States and one of the highest in the EU[1].

The main causes of infant mortality in Latvia are specific perinatal period states, for instance, trauma at labour, intrauterine hypoxia, inborn and aspiration pneumonia (>50%), etc., inborn anomalies (~25%), infant sudden death syndrome (~10%). Every year, external causes are registered among causes of death among infants (~3%) (choking, asphyxia, transport accidents, etc.), despite the fact that they are preventable[2.]

Since 2002, perinatal mortality rate has decreased by 30%; however, in 2011 and 2012, a slight decrease was observed (see Fig. 62). Perinatal mortality rates in Latvia are significantly affected by the small number of stillborn children[3].

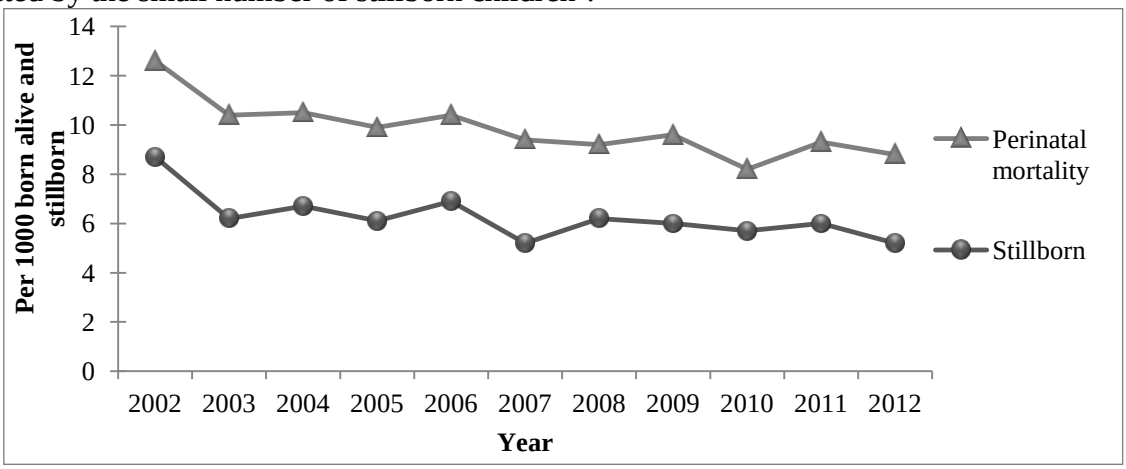


*Figure 62.* **Perinatal mortality rate and number of stillborn children per 1000 live births and stillborn**
*Data source: CDPC, The register of causes of death among the inhabitants of Latvia*

[1] European Health for All Database (HFA-DB), WHO. URL: http://data.euro.who.int/hfadb/ (viewed int. 13.06.2013).
[2] The register of causes of death among the inhabitants of Latvia. The Centre for Disease Prevention and Control of Latvia.
[3] The register of causes of death among the inhabitants of Latvia. The Centre for Disease Prevention and Control of Latvia.

In Latvia, the **probability of dying** (per 1000 live births) until the age of five years is one of the highest in Europe, but, among EU Member States, this rate is the highest one. The trend that this rate is decreasing in dynamics should be assessed positively (see Fig. 63)[1].

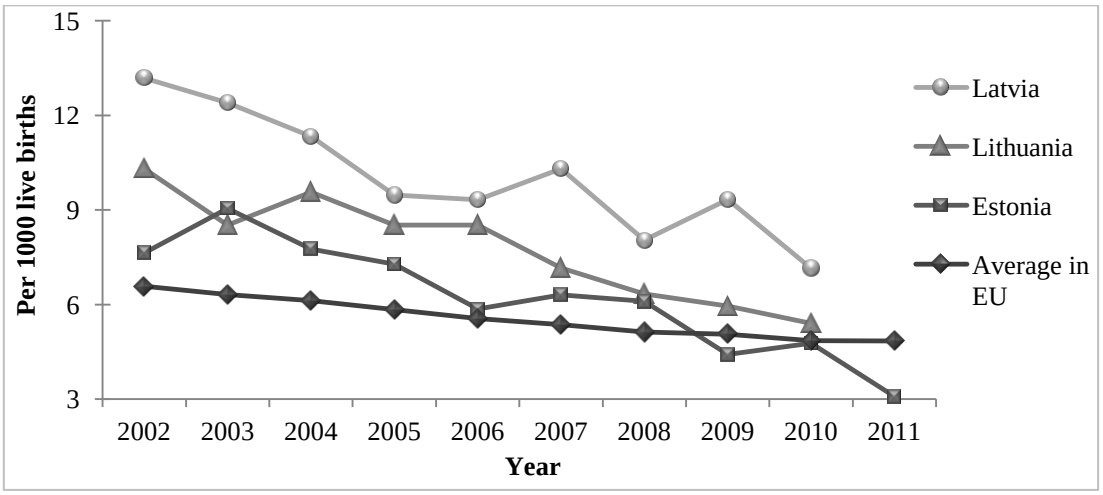


*Figure 63.* **Possibility of dying until the age of five years, per 1000 live births**
*Data source: WHO, European Health for All database*

The most significant causes of death in the structure of child mortality rate at the age from 1 to 4 years are external causes, inborn anomalies, malignant formations and nervous system diseases (see Fig. 64)[2]. Mortality rate due to external causes in dynamics has sharply decreased, other causes have no specific tendency in dynamics.

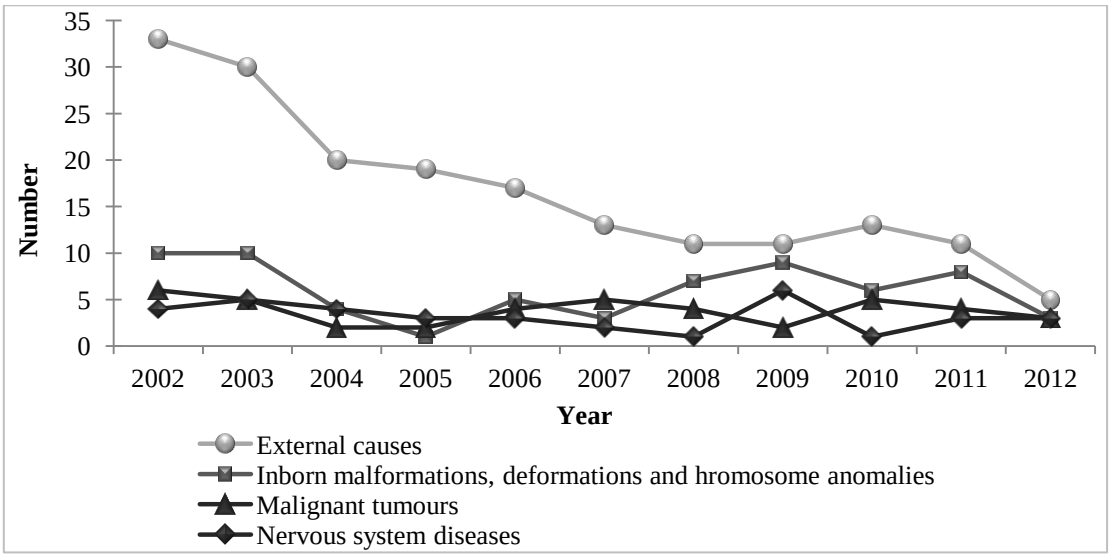


*Figure 64.* **Mortality rate among children (1-4 years) by groups of causes, absolute figures**
*Data source: CDPC, The register of causes of death among the inhabitants of Latvia*

[1] European Health for All Database (HFA-DB), WHO. URL: http://data.euro.who.int/hfadb/ (viewed int. 05.07.2013).
[2] Register of death causes in population of Latvia. The Centre for Disease Prevention and Control of Latvia.

Furthermore, the main causes of death also among children at the age above five years are external factors - nearly half of the cases. The second significant cause of death - malignant tumours (10%-15%). In dynamics, the mortality rate among children in all age groups due to external causes is decreasing; however, it is still very high, considering the fact that it is preventable[1].

[1] The register of causes of death among the inhabitants of Latvia. The Centre for Disease Prevention and Control of Latvia.