

# Dynamics of risk factors and cardiovascular diseases: analytical review of international and Russian data for 2017

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*This review article discusses the data on lifespan and dynamics of cardiovascular diseases (CVD) in Russian working age population in 2017. It provides information on specialized high-tech healthcare methods for patients with CVD. Improvement of screening and risk factors detection is noted, and it contributes to improvement of CVD primary prevention. The second part of the article reviews analytic material on main risk factors in working age men and women in Russia comparing with the other countries, taken from the European Society of Cardiology (ESC) Atlas of Cardiology. Russia is in the top ten list of countries with high prevalence of hypertension, smoking, obesity and sedentary lifestyle among 56 countries-members of the ESC.*

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According to the Ministry of Health of the Russian Federation, 2017 will be remembered as a year of cautious optimism with positive dynamics of such important indicators as life expectancy and reduction of some socially significant diseases, including cardiovascular complications. This year has been highlight-

ed with improved availability of medicine, implementation of high technologies and prevention of chronic non-infectious diseases (CNID).

In 2017, the average life expectancy of Russians reached a national historical maximum of 72.6 years. Since 2005, it has increased by 8.6 years in men and by

5 years in women. Total mortality fell by more than 2 percent, to 12.5 cases per 1000, thus meaning that 35 000 more lives had been saved in 2017. For 11 months of 2018 46 400 more lives have been saved comparing with 2017. The frequency of all mortality causes has decreased. The result of tuberculosis control is particularly impressive. This year mortality rate has decreased by 17 % to 6.3 per 1000 persons [1].

A system of emergency specialized medical care has been created in six years. It includes 593 vascular centres focused on intensive cardiological and neurological care. In addition, more than 1500 trauma centres have been commissioned. As a result, the number of patients with stroke who received modern thrombolytic therapy within the first 4.5 hours became 30 times bigger, and the number of patients who received neurosurgical treatment increased sevenfold. The volume of coronary artery stenting operations has tripled. It resulted in 54 % and 13.5 % fall of mortality rate due to stroke and myocardial infarction, respectively, whereas death from road accidents decreased by 27 %.

CNID prevention is the absolute priority of the Russian healthcare system. An extensive campaign against tobacco and alcohol consumption is ongoing, people are more involved into various sports, and vaccination has expanded within national immunization schedule.

This year 18 million adults and 22 million children received free health screening. Thanks to effective oncological screening, 55 % of cancer cases are diagnosed at stages I–II. Such risk factors like arterial hypertension and hypercholesterolemia are better controlled, and it has also improved the situation with heart disease [1].

WHO estimates that in 2016 Russia became one of three global leaders of effective control of non-infectious diseases [2].

Medical care accessibility is one of the state priorities in the field of social policy. This concerns primarily the regions of Russia. In collaboration with regional authorities it was possible to stop tremendous extinction of rural health units and outpatient clinics, and by now their number has reached 50 thousand. 400 new medical offices were opened in 2017. «Mobile» diagnostics is becoming habitual in the countryside, and 55 diagnostic car units are equipped for this purpose. Thanks to the «Zemsky Doctor» program, more than 26 thousand medical doctors started to work in the countryside. In 2018 this program was extended to towns with population of less than 50 thousand peo-

ple. In 2015 the time-limits for waiting for different types of medical care have been established depending on their urgency. New requirements of outpatient centres' and hospitals' placement have been approved depending on population size and distance to the nearest medical organization. Over the past two years the ambulance fleet has been updated. For the first time off-road vehicles on KamAZ chassis have been implemented into healthcare service in several areas.

Another relevant direction is the development and introduction of high technologies. In 2013 505 thousand patients received high-tech medical care (HTMC), and in 2016 this number exceeded 1 million patients. During the first 9 months of 2017 HTMC was provided to 790 thousand patients. The number of cardiac interventions including minimally invasive ones and of joint endoprosthesis replacement increased by 3 and 2.5 times, respectively. The number of hospitals providing HTMC has increased by 3.7 times, and nowadays there is no need to go to Moscow or St. Petersburg to receive complex treatment.

### **Prevalence of cardiovascular risk factors in Europe: data for Russia**

Cardiovascular diseases (CVD) retain the leading positions in disability and mortality among the working-age population. The European Heart Agency experts annually publish the Atlas of the European Society of Cardiology (ESC) on CVD statistics in 56 member countries [3]. In 2017 the main aim of this document was to compare indicators between high-income and middle-income countries in populations in the age range of 20–79 years. The data from WHO, the World Bank and the Health Assessment Institute were taken as the source for CVD risk factors, prevalence, and mortality.

High-income countries include Western Europe and Scandinavia, the group of middle-income countries consists of Russia, Turkey, Kazakhstan, Azerbaijan, Belarus, and the Balkans, whereas low-income countries include Georgia, Armenia, Kyrgyzstan, and Ukraine. Performed statistical analysis is gender-sensitive.

Russia takes the 7<sup>th</sup> position in terms of the prevalence of arterial hypertension (AH) (24 % among women and 34 % among men, respectively), following the former CIS countries (Estonia, Lithuania, Moldova, Belarus). The lowest frequency of AH was detected in England, Italy, Israel, and Greece.

The countries of Northern Europe are the leaders in the prevalence of hypercholesterolemia. Russia takes an average place among the analysed countries. Hypercholesterolemia is detected in 12% of female cases and in 18% of male ones. According to the results of Russian epidemiological studies the average prevalence of hypercholesterolemia in adults is about 50% (total cholesterol level >5 mmol/L).

In 2017 the highest prevalence of diabetes mellitus type 2 (DM type 2) was registered in the countries of the Middle East and Turkey. In Russia its prevalence is around 5%. These data differ from official national statistics in the direction of decrease.

Russia is among the top five countries-members of the ESC in terms of the prevalence of obesity [3]. Turkey takes the first position, and it is followed by England and Lithuania. The frequency of obesity among women is higher than among men. Among men, one in five is obese, whereas the incidence of obesity in females is 27%. In general, the high in-

cidence of obesity prevails in the CIS countries and Eastern Europe.

Even though in recent years active work to combat tobacco consumption has been conducted in our country, Russia remains the leader in the frequency of smoking: its incidence in men reaches 55%, and in women its frequency is around 16%.

Despite the existing stereotypes, Russia does not stay among the first top ten European countries in terms of alcohol consumption. Lithuania takes the leading position (15 litres per year per person), whereas the average volume of alcohol consumption in France, Germany, and England is around 11 litres, and in Russia this value is around 10 litres. The frequency of alcohol abuse in men and women is 32% and 12%, respectively.

In terms of the frequency of insufficient physical activity Russia ranks last, being the best indicator comparing with other European countries. The lowest physical activity was registered in Malta, Serbia,

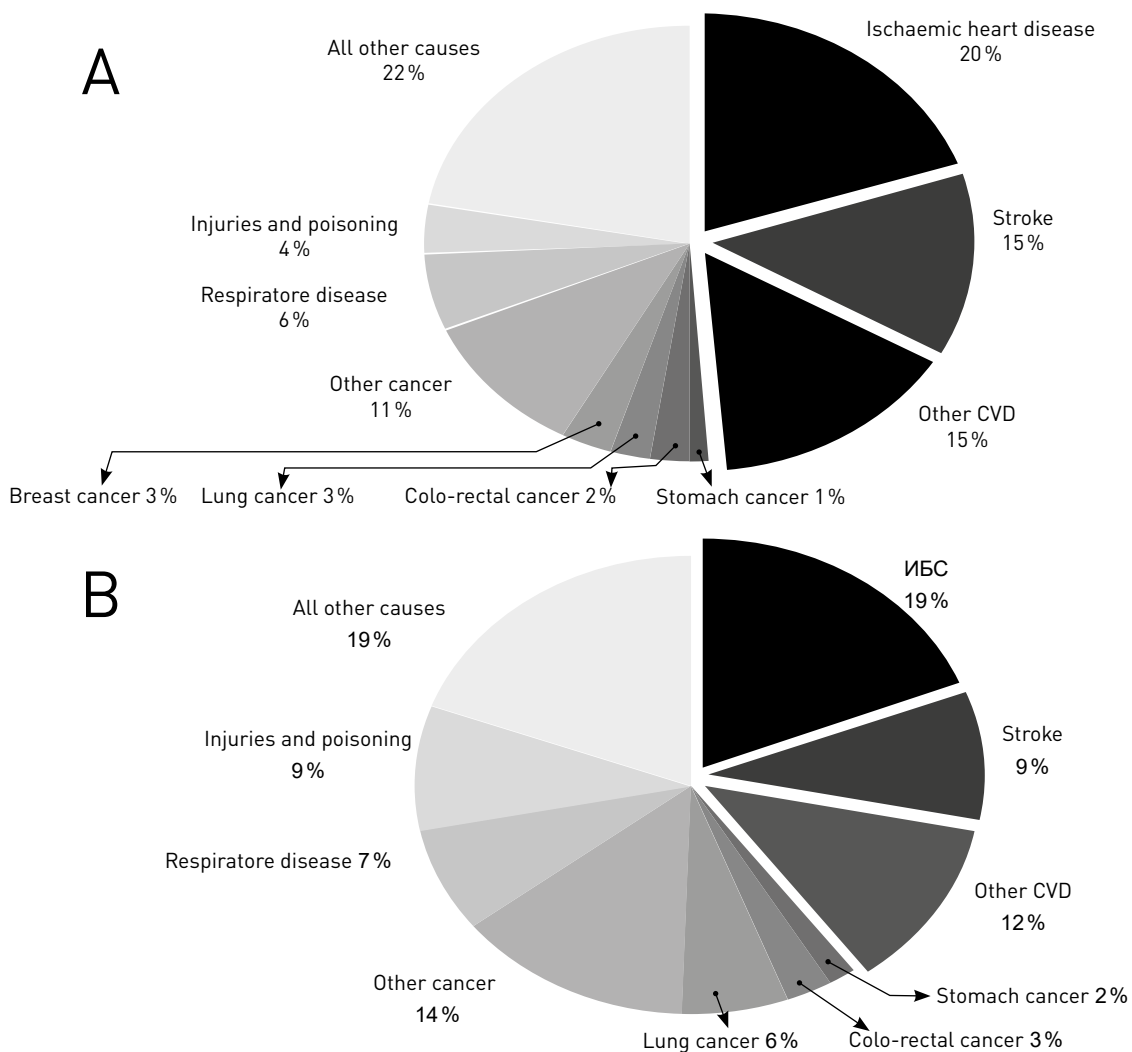


Figure 1. Causes of mortality in women (A) and men (B) in ESC member countries. Data for 2017

England and other western countries (45–50 % among men and 35 % among women). In Russia insufficient physical activity was detected in 13 % of males and 10 % of females.

In general, middle-income countries are characterized with stable indicators of CVD or their slight increase over the past 10 years, and similar situation is observed in high-income countries.

CVD and their complications remain the main causes of mortality both in men and women [3]. For example, coronary heart disease (CHD) is the cause of death in 20 % of female cases and 19 % of male cases, whereas stroke is the death cause in 13 % of women and 9 % of men. In general, the total percentage of CVD-related death causes in women and men was 48 % and 40 %, respectively.

According to the national statistical organizations, age-standardized mortality from CHD is still high in the CIS countries (Belarus, Kyrgyzstan, Moldova, Russia, and Ukraine) representing > 500 cases per 100.000 people among women and > 800 cases per 100.000 people among men, whereas in Western Europe these values are <60 (per 100.000 people) among women and <120 (per 100.000 people) among men. The same trend is observed in mortality due to cerebral stroke (>300 cases per 100.000 people in the CIS countries and <60 cases per 100.000 people in Western Europe).

## Conclusion

Thus, as the result of the introduction of high technologies and realization of CNID prevention including the prophylactic medical examination program, stabilization and slight decrease of cardiovascular morbidity and mortality are noted in Russia. Together with it, there is a lot of work to be done on primary and secondary prevention of CVD including the correction of risk factors and availability of medical care.

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