

Country report State of Montenegro – May 2018



Report by **Professor Aneta Boskovic**, MD, MSc, PhD, FESC, internist and cardiologist

National CVD Prevention Coordinator for Montenegro and President of Montenegro Society of Cardiology

Full Professor and Head Internal Medicine, Clinic for Heart Disease, Clinical Center of Montenegro. Faculty of Medicine, University of Montenegro, Podgorica

E mail: ranko@t-com.me

Prepared for the EAPC "Country of the Month" initiative

For more information about the European Association of Preventive Cardiology (EAPC), visit our [webpage](#)

[Health care](#) | [Risk factors](#) | [Prevention methods](#) | [Prevention activities](#) | [Cardiac Rehabilitation](#) | [Future](#)

Acknowledgement

This report was prepared by Professor Boskovic with the kind assistance (on the CR chapter) of Marina Delic, MD, specialist in physical medicine and rehabilitation.

Baseline information about Montenegro

Montenegro is a Mediterranean country in Southeast Europe. It's proclaimed its new constitution on 22 October 2007. The President of Montenegro is the head of state, elected for a period of five years through direct elections. The government is headed by the Prime Minister, and consists of the deputy prime ministers as well as ministers. The Parliament of Montenegro is a unicameral legislative body. Its main and largest city is Podgorica, and Cetinje was declared Old Royal Capital.

Montenegro has a picturesque coast and a mountainous northern region. The diversity of the geological base, landscape, climate, and soil, and the position of Montenegro on the Balkan Peninsula and Adriatic Sea, created the conditions for high biological diversity, putting Montenegro among the "hot-spots" of European and world biodiversity. The number of species per area unit index in Montenegro is 0.837, which is the highest index recorded in any European country.

The Montenegrin Adriatic coast is 295 km long, with 72 km of beaches, and with many well-preserved ancient old towns. National Geographic Traveller features Montenegro among the "50 Places of a Lifetime".

Classified by the World Bank as an upper middle-income country, Montenegro is a member of the UN, NATO, the WTO, and a founding member of the Union for the Mediterranean. Since 2012, Montenegro has been in negotiations for EU membership.

Area	13812km ²
Population	620 029 (census 2011) / 622 781 (The World Bank 2016)
Density	45/km ²
GDP per capita	7028 US\$ (The World Bank 2016)

Source: Monstat. 2011, The World Bank 2016, International Monetary Fund 2018, Environment Reporter 2010, Environmental Protection Agency of Montenegro 2011, Countryeconomy.com.

I. Structure of Health care

The health care system in Montenegro is publicly financed by the National Health Insurance Fund and health service is accessible to all inhabitants. Network of public health institutions of Montenegro are: 18 primary health care centers and 3 primary health stations, 7 general hospitals, 3 special hospitals, Clinical Center of Montenegro, Institute of Public Health, Institute for Emergency Medical Assistance, Blood Transfusion Institute and Pharmacy institution of Montenegro.

Montenegro is divided into 3 health care regions: northern-mountain, central and southern-sea region. The biggest is central region, Podgorica with primary, secondary and tertiary level of health care. All municipalities have primary health care centres with family doctors, paediatricians and gynecologists. Some of primary health care centres can provide additional services. Tertiary healthcare is part of the public health system and cannot be performed in private health institutions, except in the framework of a private-public partnership. There is one university hospital in Montenegro, in the capital Podgorica, providing tertiary level of health care for whole country. Private institutions, particularly stationary departments are few and mostly financially dependent on the contracts with the National Health Insurance Fund, as there is not enough private money to finance health care services, except out-patients institutions.

Health care in Montenegro is mainly financed by state budget. Private payments of households for health ("payments out of pocket") as a share in total health care costs, according to WHO data in 2012, account for 36.66%. From 2008, dental health care is organised outside the public health care, and it is performed within private dental institutions. A lower proportion of the total cost of dental care is covered by National Health Insurance Fund. The health care expenditure in Montenegro is 6.4% of gross domestic product (GDP) in 2014, which is below average in Europe.

The number of physicians (2.6 per 1,000 inhabitants in 2015) is lower than the European average (3.3 per 1,000 inhabitants). There are 8 cardiologists on 100 000 inhabitants in Montenegro, but there are some other physicians dedicated partially to cardiovascular diseases.

Chronic non-communicable diseases are the leading causes of morbidity, disability and mortality in Montenegro. The government is aware that cardiovascular diseases are the leading cause of morbidity and mortality. Yet cardiovascular prevention is still not a priority on governmental level. Government's priority in health policy is to increase capacity and availability of diagnostic and curative medicine. Most of the government's health budget is directed to hospitals.

Finances

Preventive measurements are partially paid by the National Health Insurance Fund by financing primary health care system. However, it should be noticed that primary health care physicians are not paid separately for prevention activities, but they are included in their everyday practice. Additionally, the government invests in prevention through national campaigns (for example smoking prohibition) and through the development and distribution of national guidelines. The Montenegro Society of Cardiology performs different activities aimed at preventing cardiovascular diseases and promote healthy lifestyle, such as campaigns for the World Heart Day.

Most of medications are paid entirely by the National Health Insurance Fund, but there are some medications that need individual's co-payment or payment, such as statins. The co-payment and its amount are under continuous negotiations between representatives of the government and pharmaceutical companies.

Three weeks stationary cardiac rehabilitation is paid partially or entirely by National Health Insurance Fund depending on diagnosis, age, employment and social status of patients.

Source: Monstat. 2017, The World Bank 2016, International Monetary Fund 2018, Public Health Institute of Montenegro Annual report 2017, Master plan for development of health of Montenegro 2015-2020

II. Risk factor statistics

CV Mortality

Montenegro

Total population: 621 000

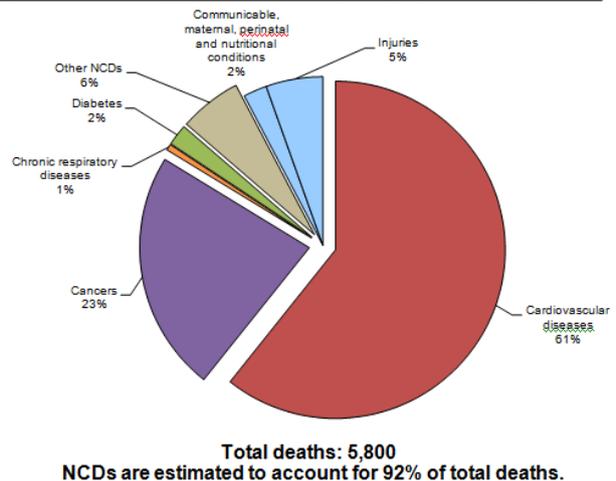
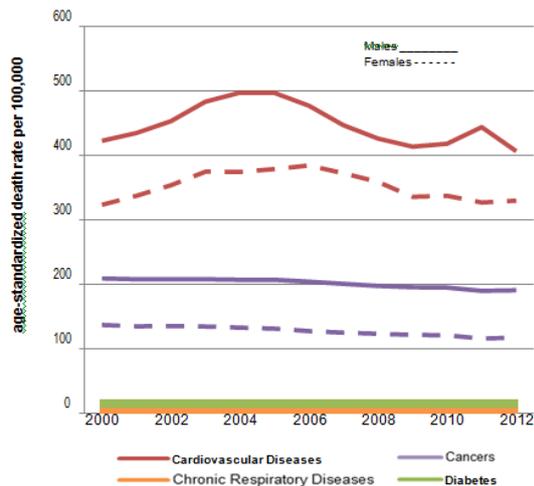
Income Group: Uppermiddle

Percentage of population living in urban areas: 63.3%

Population proportion between ages 30 and 70 years: 50.6%

Age-standardized death rates*

Proportional mortality (% of total deaths, all ages, both sexes)*



Source: World Health Organization – Non-communicable Diseases (NCD) Country Profiles, 2014

Ischemic heart disease, cerebrovascular disease, cancer, affective disorders and diabetes are responsible for almost two-thirds of the total disease burden. In 2014, chronic non-communicable diseases accounted for more than 90% of all causes of death. In the structure of mortality, cardiovascular diseases accounted for more than half of all deaths 61%, and 23% died from malignancies.

PCI resources

There is one percutaneous coronary intervention (PCI) center in Montenegro (1.61/million inhabitants), in Podgorica which offers primary PCI and elective procedures. This PCI center is 24/7 available for primary PCI in ST-Elevation Myocardial Infarction (STEMI).

Main CVD risk factors

Smoking, hypertension, hypercholesterolemia, obesity, diabetes mellitus and physical inactivity are the risk factors for the emergence of numerous chronic non-communicable diseases.

In 2008, one third of the adult population smoked in Montenegro. Many young people start smoking in the teenage. About 20% of the high school population consumes tobacco. Smoking is still socially accepted and anti-smoking campaigns are not strong enough.

Among adults 41.7% had hypertension, 40.0% had hypercholesterolemia, 52.7% had hypertriglyceridemia, 15.1% of adults were obese and 40.0% were overweight. This means that 55.1% of adults in Montenegro (46.7% of women and 64.2% of men) have some form of excessive body weight, which is a worrying fact. The same research showed that in 2008, at the age of 7-19 years, 21.2% of children and adolescents have an excessive body mass.

Only a small percentage, 11.5% regularly performed physical activity. A 2008 study of the health status of the population of Montenegro shows that among the adult population there is insufficient consumption of fresh vegetables and fruits (47.4% of adults consume fresh vegetables daily and 39.4% of fresh fruit). A similar situation exists among young people (41.5% consume daily fresh vegetables and 33.4% of fresh fruit). On the other hand, the daily consumption of sweets and sweet soft drinks is significant high.

Source: World Health Organization – Non-communicable Diseases (NCD) Country Profiles, 2014. EU Commission Staff Working Document Montenegro, 2016 Report. Institute of Public Health, 2016 Report.

III. Main actors and Prevention methods

Who delivers?

General practitioners (family doctors) and cardiologists are the basis of the Montenegrin preventive strategies for cardiovascular diseases. The number of physicians is 2.6 per 1,000 inhabitants and there are 8 cardiologists on 100 000 inhabitants, but there are some other physicians dedicated partially to cardiovascular diseases. Most of the general practitioners are employed by the state and work at primary care health units.

Most of cardiologists are employed by the state, too and work at the hospitals, but most of them, more than 90% work part time at the private practice out of hospital. About 10% of cardiologists work only in private sector. They are all involved in prevention programmes in everyday practice. General practitioners should be more actively involved in prevention of cardiovascular diseases, but they also need better education about prevention strategies and treatment of cardiovascular risk factors and morbidities, and also they should be offered more time dedicated to prevention in everyday practice.

Within the Ministry of Health there is no section for prevention of non-communicable diseases yet but the Government proposed the establishment of a Council in 2017, and the constituent session of the Council was held in February 2018. It was then emphasized that the Government of Montenegro has a clear vision and strategy for curbing and reducing chronic non-communicable diseases and that it should continue to implement public health policy defined by Master plan of health development until 2020. Council members are Prime Minister, Deputy Prime Minister for Economic Policy and Financial System and 9 ministers. The Montenegro Society of Cardiology carries out certain activities and campaigns to prevent cardiovascular diseases such as education for general practitioners, the promotion of healthy lifestyles with the help of media for the general population and campaigns for World Heart Day.

Where?

Prevention of cardiovascular diseases is carried out in the primary health care system organized at national level, but even in the private sector. Secondary prevention of cardiovascular diseases is carried out in hospitals and rehabilitation centres, although in hospitals the main focus is on improving the quality of inpatients hospital care, attention is mostly paid to treatment of acutely ill patients, and in much lesser degree in prevention. Several preventive programs: anti-stress program, weight-losing programs and prevention of metabolic syndrome are implemented in the Institute for Rehabilitation in Igalo. There are no nurse-based programs and specialized private institutions for CVD prevention in our country.

Guidance

The [European Guidelines on Cardiovascular Disease Prevention in Clinical Practice](#) are generally endorsed by Montenegro Society of Cardiology. The Society takes care of its promotion and implementation in everyday practice. National guidelines were published in 2012, but since then they have not been updated, so we mainly rely on ESC guidelines.

Quality control

There is not structured established quality control system for auditing efforts in cardiovascular diseases prevention. There are some attempts from the Public Health Institute in form of annual statistical report. This report provides data on morbidity and mortality from the most common diseases including cardiovascular diseases in Montenegro. The data from the Registry of Acute Coronary Syndrome, which is being conducted since 2013, can partially point to the implementation of measures in the prevention of cardiovascular disease.

Source: The World Bank 2016, Public Health Institute of Montenegro Annual report 2017, Master plan for development of health of Montenegro 2015-2020, www.igalospa.com

IV. Main Prevention activities

Campaigns

The Government of Montenegro adopted a strategy for the prevention and control of chronic non-communicable diseases in 2008. The Health Care Improvement Project in Montenegro*, funded by the World Bank, includes the component of improving the quality of health care, as well as the development and implementation of clinical guidelines and protocols in Montenegro.

The tobacco control law was amended to ensure compliance with the EU recommendations on health warning labels on packaging. However, the law on the use of tobacco in public places, although adopted, is not fully respected. Smoking is prohibited in work areas, while in most restaurants there is a part where smoking is allowed. Montenegro Society of Cardiology carries out the promotion of healthy lifestyles and participates in various campaigns such as the World Heart Day.

Projects

National projects in the area of CVD prevention approved by the Ministry of Science and the Ministry of Health of Montenegro:

- "Research of obesity and poverty in children of Montenegro – clinical, pathophysiological, biochemical and preventive aspects"(Prof. Milica Martinovic)**
- "Application of nuclear techniques for the design and evaluation of measures aimed at preventing and controlling obesity in adolescents in South East Europe" (Institute of Public Health)***
- "Biomarkers in prediction and prevention of development of coronary artery disease in patients on hemodialysis"(Prof. Marina Ratkovic)**
- "Clinical efficacy of statins in secondary prevention of coronary artery disease" (Prof.AnetaBoskovic)**

* www.mzdravlja.gov.me

** www.ucg.ac.me

*** www.ijzcg.me

Reference: M. Martinovic, G. Belojevic, Evans GW, D. Lausevic, B. Asanin. Prevalence of and contributing factors for overweight and obesity among Montenegrin schoolchildren. Eur J Public Health. 2015 Oct;25(5):833-9. doi: 10.1093/eurpub/ckv071. Epub 2015 Apr 4.

Education

Cardiovascular prevention is part of student training in internal medicine and family medicine and in post-graduate training in family medicine at the Medical Faculty of the University of Montenegro in Podgorica.

V. Cardiac Rehabilitation (CR)

This part of the report was prepared in cooperation with Marina Delic, MD, specialist in physical medicine and rehabilitation.

For whom

The Health Insurance Fund of Montenegro approves in-patient cardiac rehabilitation for patients after acute myocardial infarction, coronary artery bypass surgery (CABG), valvular surgery and after graft aorta interposition. For all of the above mentioned conditions, the 3-week rehabilitation is approved within 6 months after hospital treatment. There are two highly specialised institutions for in-patient cardiac rehabilitation in Montenegro. The Institute "Dr Simo Milosevic" in Igalo, as a tertiary rehabilitation institution annually through the Health Insurance Fund, receives about 700 patients on cardiac rehabilitation from all regions of Montenegro. The other institution is the private Hospital Meljine. There are no age limits for implementation of cardiac rehabilitation program.

By whom and how

Cardiac rehabilitation consists of a comprehensive, long-lasting program that includes medical evaluation, physical training, modification of cardiovascular risk factors, education and counseling. Programs are designed to limit the physiological and psychosocial effects of heart disease, reduce the risk of sudden cardiac death or reinfarction, control symptoms of the disease, stabilize or reduce atherosclerotic processes and improve the psychosocial and work status of patients. The goals of secondary prevention are integrated in the goals of cardiac rehabilitation, with significantly broader goals of rehabilitation, primarily in the field of improving the quality of life and reducing the psychosocial effects of the disease.

Rehabilitation is carried out in three basic stages:

- Phase I - acute and early post-operative hospital phase
- Phase II - late post-acute hospital phase
- Phase III – maintenance phase.

The first phase of cardiac rehabilitation begins immediately after the acute phase of myocardial infarction or cardiac surgery, still in the intensive care unit and continues in the cardiac or cardiac surgery department. At this phase all patients are involved. It includes breathing and exercise exercises in the bed, then bedding, stagnation and walking in the corridor. The education of patients and families of the disease and risk factors begins.

The continuation of rehabilitation in **the second phase** may follow immediately or a few weeks after the first phase. The patient is referred to the institution for stationary (in-patient) cardiac rehabilitation and this phase lasts for 3 weeks. About 70% of eligible patients are involved, about 30% of patients don't want to participate in this phase, maybe because of costs or some other reasons. The goals of this phase are: improvement of weakened or previously poor physical fitness, stabilisation of cardiac status, risk factor reduction, progression of the disease, psychological stabilisation and

preparation for full social reintegration with renewal of working abilities. At this stage participate cardiologists, specialists in physical medicine and rehabilitation, educated nurses and physiotherapists, dieticians, psychologists, and, if possible, social workers. During the admission of the patient, the condition of the disease is reevaluated, with the selection into groups of different weights of physical training. The intensity, form and duration of the training is individualised according to the condition of the patients ranging from strictly dosed individual training under continuous supervision to group training with a diverse selection of exercise with supervision. Physical training in the second phase involves several forms of activity: breathing and exercise exercises, bicycle-ergometer, outdoor exercises and trim walking trips and recreational swimming.

In the modern holistic treatment of these patients, cardiac rehabilitation itself is complex in its content and tasks. It represents an integral segment of complex treatment that gets an increasingly popular accent. It is team-led, comprehensive (includes the overall personality of a person), individually adapted and implies application of various programs, including various forms of complex, dosed and controlled physical training, education, relaxation, work on biosynchron as well as anti-stress program, hygienic-dietetic measures, correction of adverse life habits as well as methods of physical therapy. During the implementation of the mentioned rehabilitation programs, continuous medical checking by the staff is required, which is followed on-site and with the help of medical equipment (ECG, Holter ECG, monitoring blood pressure, ECHO), which makes the program safer and according to the protocol implemented.

At the end of the program it is necessary to evaluate the achieved effects of the physical program. The best results are achieved if it is possible immediately after the stationary rehabilitation to continue the long-term program of outpatient rehabilitation. Patients are advised to continue a long-term program independently in agreement with the cardiologist. There isn't a national heart patients organisation.

Audit and costs

The quality of cardiac rehabilitation in Montenegro is quite high. The Institute for rehabilitation has ISO 9001-2016 standard. Institute is a teaching base for program of applied physiotherapy at the Faculty of Medicine of University of Montenegro. It provides continuous medical education for staff according to local practice and based on European Guidelines.

The costs of 3 weeks cardiac rehabilitation are completely covered by Health Insurance Fund for patients with acute myocardial infarction, for patients older than 65 years, for those who are unemployed and for those who are recipients of social assistance. The other patients participate 40% in costs, which is about 10% of the minimum national salary per day.

Source: www.fzocg.me (Montenegrin only) / www.igalospa.com/en

VI. The Future

Needs

Risk factor for cardiovascular diseases are highly related to lifestyle and habits, factors which we should be able to control. The surveillance system of chronic non-communicable disease is underdeveloped (missing registries for many cardiovascular diseases) due to which there are no precise data on disease (incidence and prevalence). We started with the registers for acute coronary syndrome, cerebrovascular disease and for diabetes mellitus a few years ago. We hope that the register data will help us in organising CVD prevention. There is need for increasing public awareness of the importance of CVD prevention through more active media coverage and raising awareness of importance of following the guidelines in preventing cardiovascular morbidity and mortality.

Possibilities

With regards to non-communicable diseases, health promotion and prevention of cardiovascular diseases remains underutilised. More complete data from the registers for the total number of patients suffering from these diseases are expected in the coming period, as well as indicators that will be generated based on registers. Possibilities for success depend on a broad national awareness of cardiovascular preventative programs and people's health education which should be significantly improved. The 2016-2017 action plan to implement the strategy for the prevention and control of chronic non-communicable diseases and Action plan for nutrition 2017-2018 was adopted. The WHO European Childhood Obesity Surveillance Initiative was carried out, though no official results are available yet. It is necessary to strive for strict compliance with the law on prohibiting of smoking in public places.

Obstacles

The main obstacles for implementing prevention and rehabilitation programs in the coming years are lack of public interest for cardiovascular prevention, lack of financial resources and unwillingness of the general public to change lifestyle.

Plans

The Montenegrin health system, despite some weaknesses, has a good basis for relatively fast modernisation and transformation into a quality and efficient health system in line with EU standards and norms. In order to achieve this goal, among other things, it is necessary to implement the measures and activities for successful prevention of cardiovascular diseases, for which the help and support of the entire community is necessary. In 2017, the Government established the National Council for the Coordination and Prevention of Chronic Non-communicable Diseases in Montenegro. The need to increase taxes and excise taxes on tobacco products and sweet soft drinks was highlighted, which could contribute to reduced smoking and obesity. Bearing in mind the increased participation of obesity and diabetes mellitus as risk factors, the Montenegro Society of Cardiology will continue to celebrate World Heart Day, to educate physicians and to work on the promotion of healthy lifestyle which is of great importance, especially regular physical activity and healthy food intake.