

Cancer Dashboard for Montenegro

Argyro Pavlidou, Magdalena Stepien, Thomas Hofmarcher



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Purpose

In 2023, the Swedish Institute for Health Economics (IHE) launched an international initiative with support from MSD, aiming to facilitate the exchange of best practices in cancer care across European countries. This initiative is called "Cancer Dashboards in Europe". It has its background in the launch of the Europe's Beating Cancer Plan and the question of how to translate political commitment into action. The objective is to create country-specific dashboard-style reports with a comprehensive and illustrative description of a selected set of key indicators in all areas of cancer care. These indicators benchmark the current status quo in a country against target values specified in national cancer plans, targets set by international organizations, or values of other countries. The reports also provide evidence-based recommendations on how to improve the current situation in a country.

This dashboard report for Montenegro focuses on cancer in general. It is intended to support the implementation of the National Cancer Control Plan for 2026-2028 and other ongoing initiatives to improve cancer care in the country. The description seeks to support Montenegrin policymakers in the decision-making and prioritization of initiatives in cancer care. The dashboard is intended to be a living document, which can be updated when newer data become available. It can also be extended to additional areas and indicators that become relevant based on developments in Montenegro or Europe.

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Foreword

Cancer is one of the greatest public health challenges in Montenegro. It is estimated that during 2024, more than 3,000 new cases of malignant diseases were diagnosed, while over 1,500 citizens lost their lives as a result of cancer. The most common malignancies in our country are lung cancer, colorectal cancer, breast cancer, and prostate cancer. The number of cancer cases and cancer-related deaths is expected to continue rising due to population aging and other demographic changes.

The publication Cancer Dashboard for Montenegro, prepared by the Swedish Institute for Health Economics (IHE), provides a comprehensive overview of the current state of cancer care in Montenegro. This report analyzes the entire patient journey, from prevention and early detection to diagnosis, treatment, and palliative care, while benchmarking Montenegro against European standards and the experiences of neighboring countries. Its particular value lies in identifying both areas where progress has been achieved and those that require additional attention and investment.

In recent years, Montenegro has taken significant steps toward improving cancer care. The National Program for the Prevention and Control of Malignant Diseases 2026-2028 has been adopted, initiatives to strengthen screening programs have been launched, access to certain diagnostic and therapeutic capacities has been improved, and major infrastructure projects have been planned to support the continued development of the healthcare system. Particularly important is the clear strategic commitment to improving the quality of treatment, developing national clinical guidelines, and ensuring equitable access to healthcare services for all patients.

Nevertheless, many challenges remain. Smoking prevalence is among the highest in Europe, participation rates in screening programs remain below recommended levels, and there is a substantial need to further improve access to innovative diagnostics, modern therapies, healthcare professionals, and palliative care services. In addition, strengthening the national cancer registry and improving data collection systems will be crucial for the planning of future activities and the monitoring of outcomes.

This dashboard provides a strong foundation for evidence-based decision-making. Its findings and recommendations can contribute to stronger collaboration among policymakers, healthcare professionals, the scientific community, patient organizations, and all other relevant stakeholders. Only through joint efforts in prevention, early detection, diagnosis, treatment, and patient support can we reduce the burden of cancer and improve treatment outcomes for the citizens of Montenegro.

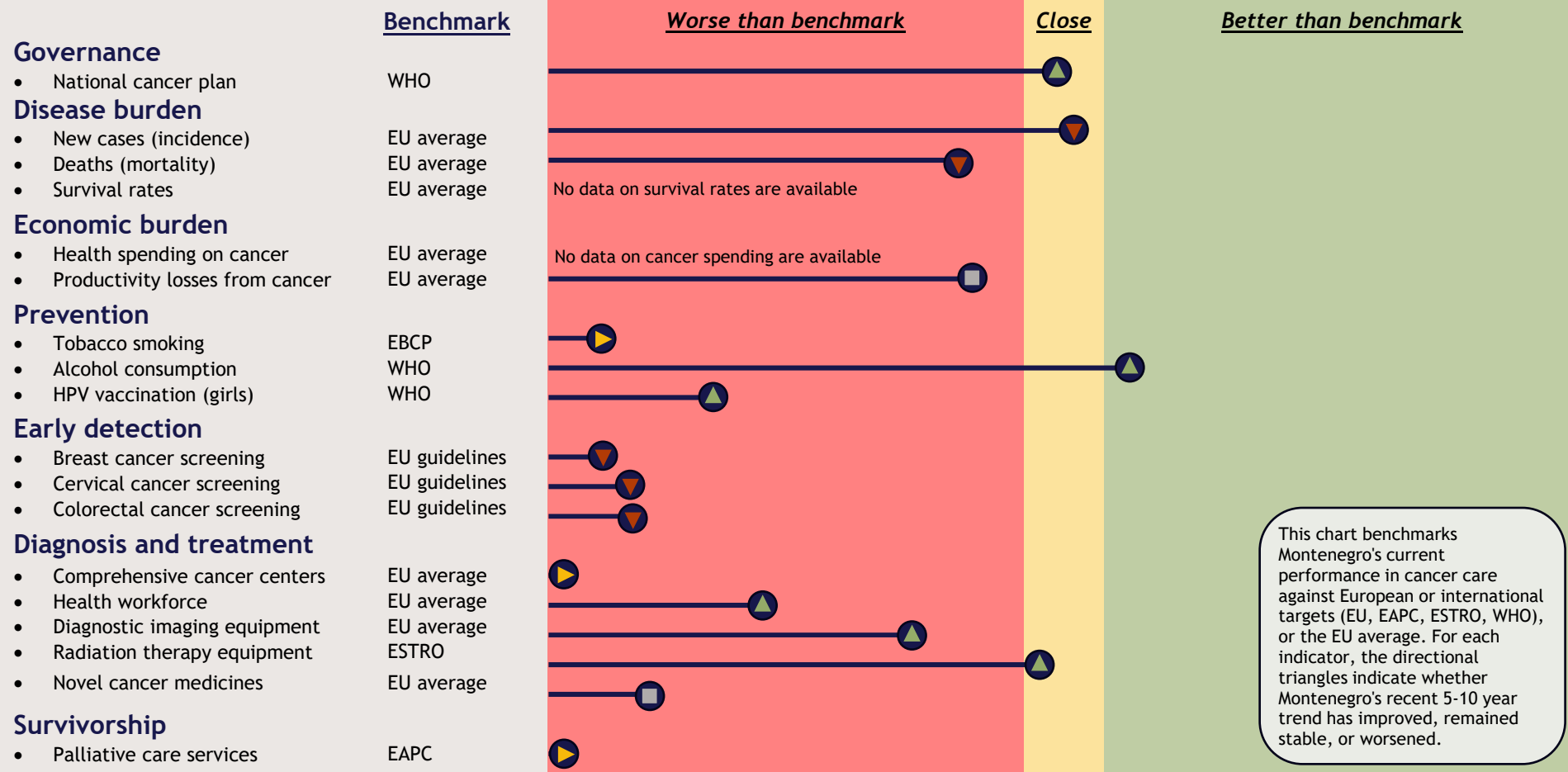
Dr. Nikola Milašević

Director, Clinic of Medical Oncology

Clinical Center of Montenegro (CCM)

Dashboard overview Montenegro

Comparative Performance: Montenegro vs. Benchmark



Legend: ▲ Positive development, ▶ Stable development, ▼ Negative development, ■ No data or not applicable

Abbreviations: EAPC = European Association for Palliative Care, EBCP = Europe's Beating Cancer Plan, ESTRO = European Society for Radiotherapy and Oncology, EU = European Union, HPV = human papillomavirus, WHO = World Health Organization.

Notes: All indicators are defined in % or per capita terms; see the main text for a detailed description and the Appendix for the exact definition used.

High-level recommendations

Governance

- ✓ Ensure the implementation and annual monitoring of the National Cancer Control Plan (NCCP) 2026-2028 with clear objectives and adequate funding for all actions. Build on experiences from other programs and align implementation with the current national strategies, best practices from other countries, and Europe's Beating Cancer Plan.

Funding and Data

- ✓ Prioritize investment in high-impact areas such as early detection, timely diagnosis, access to innovative diagnostics and therapies, care coordination, and workforce capacity, while addressing bottlenecks across the cancer care pathway.
- ✓ Strengthen cancer monitoring systems through the modernization of the Cancer Registry and provide comprehensive and timely data on outcomes, processes, and spending.

Prevention

- ✓ Strengthen implementation of tobacco and alcohol control measures, provide routine monitoring of prevalence and attitudes and regular evaluation of policy impact.
- ✓ Increase HPV awareness through targeted public information campaigns and strengthen primary prevention efforts in line with NCCP objectives.

Early Detection

- ✓ Expand and strengthen population-based breast, cervical, and colorectal cancer screening programs in line with the latest international recommendations, including:
 - Implementation of centralized invitation and recall systems.
 - Development of capacity plans to ensure sufficient workforce, equipment, and healthcare infrastructure to support screening program expansion.
 - Establishment of national screening registries and electronic monitoring systems.
- ✓ Implement comprehensive communication, education, and advocacy campaigns to increase screening participation, reduce stigma, and improve awareness.

Diagnosis and Treatment

- ✓ Ensure accreditation for healthcare institutions. Develop and implement national guidelines to ensure timely and equitable access to modern diagnostics, radiation therapy, innovative treatments, and multidisciplinary cancer care.
- ✓ Develop a long-term national oncology workforce strategy. Strengthen continuous professional education and improve working conditions to support high-quality care delivery and workforce sustainability.
- ✓ Expand and maintain capacity for cancer diagnosis and treatment through strategic investments in equipment, infrastructure, and future workforce planning.
- ✓ Streamline reimbursement and approval pathways for cancer medicines and prioritize the inclusion of cost-effective treatments with substantial clinical benefit.

Survivorship

- ✓ Create and integrate equitable palliative care services within the national health system and cancer care pathways, in line with European recommendations.

IHE Cancer Dashboards

Cancer has received growing political attention across Europe in recent years. The launch of Europe's Beating Cancer Plan (2021) by the European Commission reflected a strengthened commitment to addressing the burden of cancer in a more systematic and coordinated way (1). Across the European Union (EU) and in Montenegro, cancer is the second-leading cause of death, responsible for about one in five deaths in the EU (2) and one in six deaths in Montenegro (3). Substantial inequalities in cancer care persist, both between and within European countries. A key challenge lies in translating international and national initiatives into action: while the policy landscape is rich in ambition, it often lacks funding and clear and practical tools to support implementation, guide prioritization, and monitor progress at national and/or regional level.

To help bridge the gap between policy plans and action, the Swedish Institute for Health Economics (IHE) has developed a series of national Cancer Dashboards since 2023 for countries such as Austria, Croatia, Denmark, Finland, Greece, Italy, Lithuania, Poland, Portugal, Serbia, and Slovenia. These dashboards provide an intuitive and structured overview of how countries perform in cancer care. By combining data, benchmarking, and evidence-based recommendations, they offer policymakers and stakeholders actionable insights, highlighting where progress is being made, where efforts must accelerate, and where strategic investment is required. Ultimately, each dashboard serves as a navigation tool to support the planning, implementation, and evaluation of effective, equitable, and outcome-oriented cancer control.

While some dashboards cover specific types of cancer, others provide a general overview of cancer care. Building on this work, this dashboard focuses on cancer care in Montenegro.

Structure of the dashboard and choice of indicators

This report begins with an overview of Montenegrin and European governance frameworks relevant to cancer, including Montenegro's National Cancer Control Plan (NCCP) and Europe's Beating Cancer Plan (EBCP). It then provides an analysis of the disease burden and economic burden of cancer, highlighting the impact of the disease on patients, the healthcare system, and society at large. These contextual elements set the stage for understanding the urgency of national-level action. The report then follows the cancer care pathway, structured around the four pillars of the EBCP. Together, the dashboard presents a comprehensive view of the current status of cancer management in Montenegro.

The dashboard is structured as follows:

- **Governance** (1 indicator): National cancer plan
- **Disease burden** (3 indicators): New cases (incidence), deaths (mortality), survival rates
- **Economic burden** (2 indicators): Health spending on cancer care, productivity losses from cancer
- **Prevention** (3 indicators): Tobacco smoking, alcohol consumption, human papillomavirus (HPV) infection
- **Early detection** (3 indicators): Screening for breast, cervical, and colorectal cancer
- **Diagnosis and treatment** (5 indicators): Comprehensive cancer centers, health workforce, diagnostic imaging equipment, radiation therapy equipment, novel cancer medicines
- **Survivorship** (1 indicator): Palliative care services

The starting point for the selection of indicators was the original list of indicators assembled by IHE for the European Cancer Pulse of the European Cancer Organisation (4). The final set of indicators was selected based on discussions with Dr. Nikola Milašević (Clinical Center of Montenegro, KCCG), Dr. Aleksandar Obradović (Medical Doctor, Epidemiologist), MSD, and local data availability.

For each indicator across the cancer care pathway, this report provides:

- A general explanation of its relevance, and how it relates to the Montenegrin NCCP 2026-2028 and the EBCP
- A description of the current situation in Montenegro, with international comparisons
- Recommendations for improvement and alignment with national and international targets

Data sources for all indicators are summarized in the Appendix. All data were drawn from publicly available sources.

Benchmarking is conducted internationally to provide relevant reference points against Bulgaria, Croatia, Serbia, Slovenia, and the EU average (of the EU27 member states), whenever data are available.

Governance

In 2017, the World Health Assembly (the decision-making body of the World Health Organization, WHO) adopted resolution WHA70.12 on cancer prevention and control (5). It calls on governments to commit themselves to accelerating action against cancer. Specifically, it urges governments to develop and implement national cancer control plans that are inclusive of all age groups, that have adequate resources, monitoring and accountability, and that seek synergies and cost-efficiencies with other health interventions.

Governance of cancer care in Montenegro

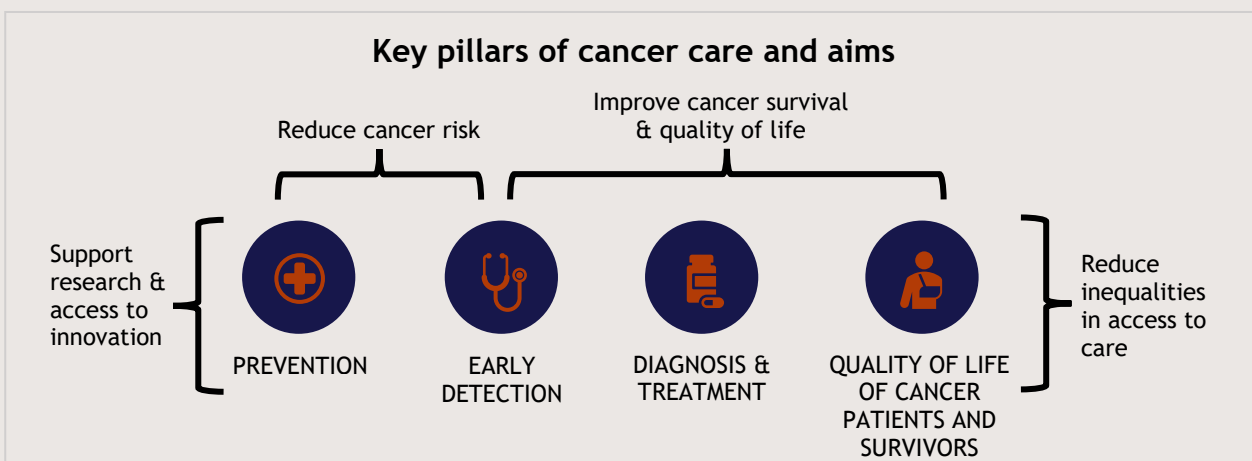
The Montenegrin National Cancer Control Plan (NCCP) 2026-2028, “Program for Prevention and Control of Malignant Diseases with Action Plan 2026-2028”, was launched by the Ministry of Health (MoH) and succeeds the 2011-2015 program (6). Its purpose is to improve population health and reduce cancer burden, as well as to ensure equal access to quality services. The objectives and activities of the program are structured around six areas:

1. **Primary prevention:** Focus is placed on reducing exposure to cancer risk factors, expanding HPV vaccination, as well as introducing healthy lifestyle education for the public, and training of health professionals.
2. **Early detection:** This area focuses on establishing functional cancer screening programs.
3. **Diagnostics and treatment:** This area underscores the need for capacity strengthening, modernizing infrastructure, developing national clinical guidelines, and expanding training and education opportunities for healthcare professionals.
4. **Psychosocial and palliative care:** Emphasis is placed on expanding and improving psychosocial and palliative care services to support patients and their families.
5. **Information systems:** This area is dedicated to improving data systems and the Cancer Registry.
6. **Institutional and intersectoral coordination:** Focus is placed on coordinated multi-stakeholder action.

Other key national documents are the Healthcare Development Strategy 2023-2027 and the National Strategy for the Control and Prevention of Chronic Non-Communicable Diseases 2023-2030, which emphasize the need for strengthening the areas of prevention and early detection, as well as health system capacity (6, 7).

Europe’s Beating Cancer Plan (EBCP)

In 2021, the European Commission launched Europe’s Beating Cancer Plan (EBCP), a comprehensive policy initiative aimed at tackling cancer through ten flagship initiatives that cut across four main areas of action - prevention, early detection, diagnosis and treatment, and the quality of life of cancer patients and survivors - and follow the entire disease trajectory (see figure below) (1). There are also several simultaneous goals of cancer care. One goal is to prevent what can be prevented. Approximately 30-50% of cancer cases could theoretically be prevented because they are caused by modifiable risk factors (8). Another goal is to improve the survival and quality of life of patients - through early detection (e.g., screening programs), diagnosis and treatment (e.g., through access to modern diagnostic tools and treatments), and follow-up care for survivors. Cross-cutting goals are to reduce inequalities in access to care (e.g., of different socioeconomic groups) and to support research and access to innovations to advance cancer care from the current status quo. Furthermore, the EBCP aligns with the EU Cancer Mission under the Horizon Europe 2021-2027 research funding program (which is also accessible for Montenegro), emphasizing a collaborative approach to reducing cancer prevalence and enhancing patient care across Europe.



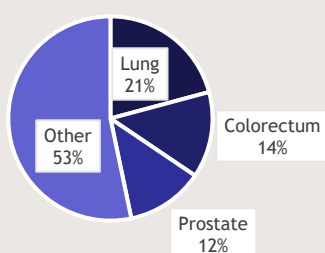
Disease burden of cancer

Incidence and mortality

In 2013, the Cancer Registry was established in Montenegro. One annual report was published in 2018 for the initial year 2013 (as of May 2026) (9). Therefore, newer disease burden estimates are in this report derived from GLOBOCAN for both Montenegro and the included comparison countries to allow for better cross-country comparison. In 2024, the estimated number of new cancer cases (incidence) was 3,007 (1,402 men and 1,605 women; all sites excluding non-melanoma skin cancer) (10). The three most common diagnosed cancer types in men were lung, colorectal and prostate cancer, and in women they were breast, colorectal and lung cancer (10). They account for around half of all cancer cases. The estimated number of cancer deaths (mortality) was 1,615 (851 men and 764 women; all sites excluding non-melanoma skin cancer) in 2024 (10). Lung cancer was the leading cause of cancer death in men (31%), whereas breast cancer led in women (22%) (10).

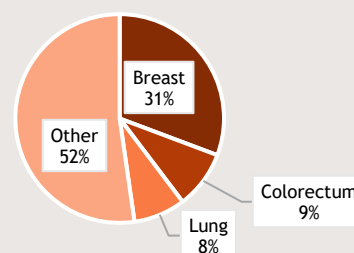
GLOBOCAN estimates show that Montenegro recorded 260 new cases and 119 deaths per 100,000 inhabitants in 2024 (age-standardized rates). In relation to comparison countries, the age-standardized cancer incidence rate was lower than in Croatia, Slovenia and the EU27, while cancer mortality was higher than in Bulgaria, Slovenia and the EU27 (10). Past trends of new cases and deaths, according to GLOBOCAN data, indicate an increase in incidence over time; mortality also increased between 2018 and 2024 (see Appendix for methodological clarification) (10-13). Projections of future cancer numbers - which are based on the expected demographic development and take into account the effects of further population aging - indicate growing numbers of incidence and mortality in Montenegro, exhibiting a similar trend as the EU27. Own calculations based on GLOBOCAN data indicate that cancer incidence (per 100,000) in Montenegro is expected to grow by 22% between 2025 and 2040, and mortality by 29% (14).

Cancer incidence among men in Montenegro in 2024
Number of new cases: 1,402



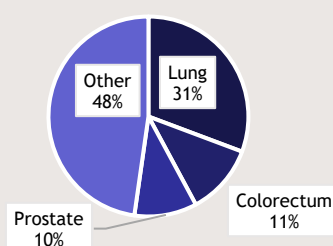
Source: GLOBOCAN

Cancer incidence among women in Montenegro in 2024
Number of new cases: 1,605



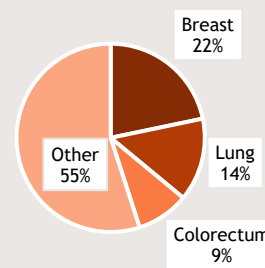
Source: GLOBOCAN

Cancer mortality among men in Montenegro in 2024
Number of deaths: 851



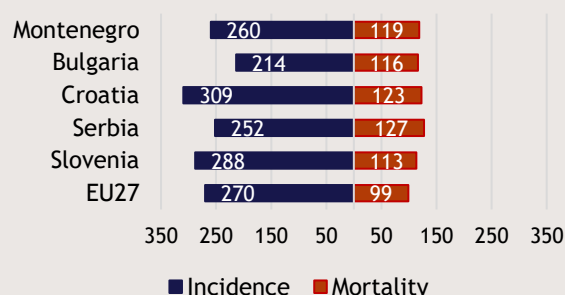
Source: GLOBOCAN

Cancer mortality among women in Montenegro in 2024
Number of deaths: 764



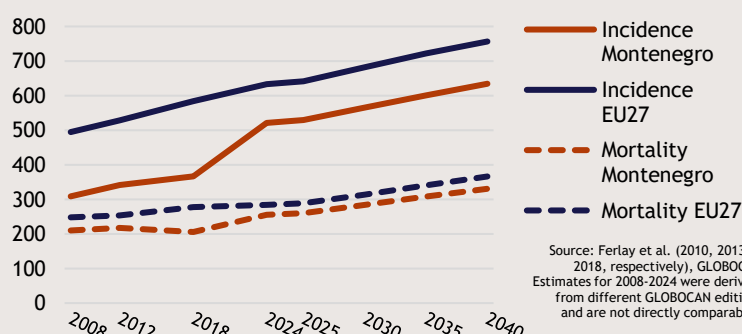
Source: GLOBOCAN

Cancer incidence and mortality per 100,000 inhabitants (age-adjusted rates) in 2024, both sexes



Source: GLOBOCAN

Cancer incidence and mortality per 100,000 inhabitants (crude rates) over time, 2008-2040, both sexes



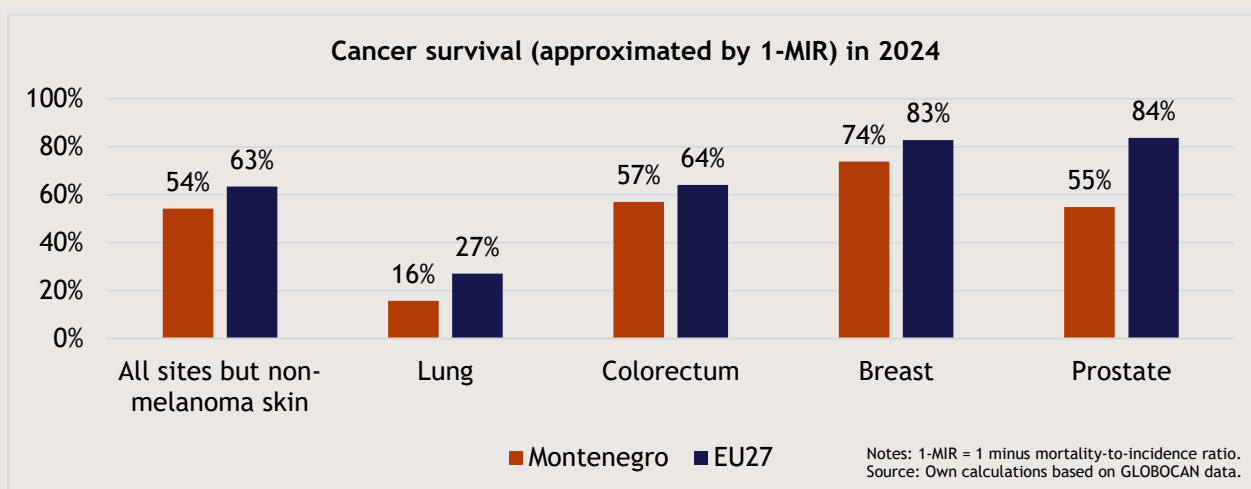
Source: Ferlay et al. (2010, 2013 & 2018, respectively), GLOBOCAN Estimates for 2008-2024 were derived from different GLOBOCAN editions and are not directly comparable.

Survival

The latest internationally comparable survival rates are from the CONCORD-3 study which covered the diagnosis period 2000-2014, yet Montenegro was not included in this study (15). Due to the lack of an up-to-date cancer registry with survival rate information, it is difficult to assess the most relevant patient outcome and thereby the quality of the cancer care system.

A proxy measure for survival rates is the complement of the mortality-to-incidence ratio (1-MIR), although limitations of this measure have been pointed out in the literature (16). The 1-MIR for Montenegro was 54% in 2024, based on GLOBOCAN numbers for all cancer sites excluding non-melanoma skin cancer (10). This is lower than the 1-MIR in the EU27, 63%, in 2024, based on estimated numbers (10). For all four most common cancer types in Montenegro in 2024, the 1-MIR is below the EU27 average. For lung cancer, the Montenegrin 1-MIR was 16% but 27% in the EU27, indicating an overall low survival in both Montenegro and the EU27. For colorectal cancer, the 1-MIR was 57% in Montenegro and 64% in the EU27. Among women, the 1-MIR for breast cancer was 74% in Montenegro and 83% in the EU27. For men, the 1-MIR for prostate cancer was 55% in Montenegro, lower than the 84% of the EU27.

The Montenegrin numbers fall below the EU average, which could be partly related to the lack of nationwide screening programs, as well as limited access to modern diagnostic tools and cancer treatment. However, this also indicates that it is possible to improve cancer survival and reduce the number of cancer deaths by following best practices from other countries in the region. For instance, improving cancer screening programs allows for earlier diagnosis, and investing in cancer care infrastructure, equipment, and effective medicines ensures cancer patients receive high-quality treatment. The remaining analysis in this report will evaluate the performance of Montenegro in relation to other European countries and thereby reveal strategic opportunities to improve patient outcomes and reduce the overall burden of cancer.



Recommendations

- Strengthen and modernize the Cancer Registry, through the introduction of automated data entry from health institutions and laboratories as well as providing training to staff in healthcare institutions in data entry and utilization in line with the NCCP 2026-2028 objectives.
- Include reporting of key epidemiological statistics (e.g., incidence, mortality, prevalence, survival, stage at diagnosis) in the registry's protocol and ensure regular and timely publication of the collected data in annual reports to enable monitoring of the current situation and inform policy action.

Economic burden of cancer

The economic burden of cancer in Montenegro is not well documented. In Europe, the overall economic burden of cancer was estimated to be EUR 199 billion in 2018, corresponding to EUR 378 per capita (17). Healthcare expenditure on cancer care accounts for 52% of this burden, costs of lost productivity for 35%, and costs of informal care for 13%.

The overall economic burden of cancer consists of:



Healthcare expenditure (direct costs):

- Resources of the healthcare system (medical equipment, staff, medicines, etc.) funded both by public and private sources



Costs of lost productivity (indirect costs):

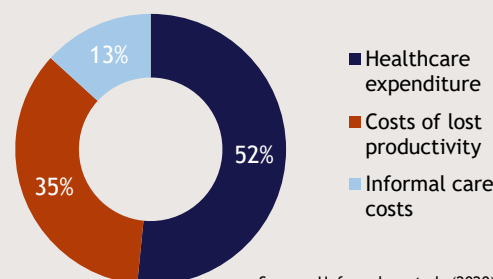
- Productivity losses from absence due to sickness, permanent incapacity/disability, and premature mortality of working-age patients



Informal care costs:

- Value of the time forgone by relatives and friends to provide unpaid care

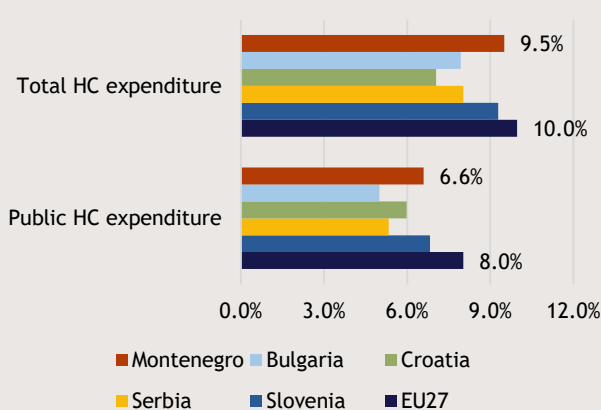
Composition of the economic burden of cancer in Europe in 2018



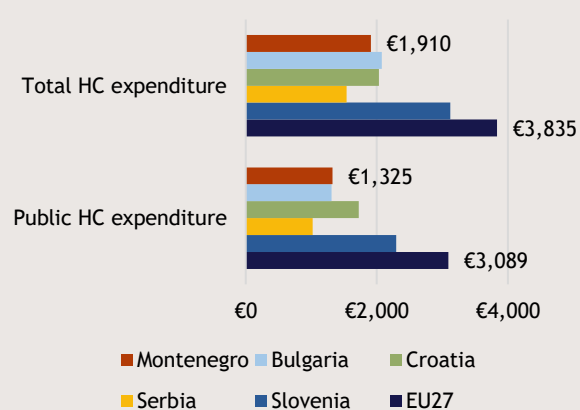
Source: Hofmarcher et al. (2020)

In 2023, the total healthcare expenditure accounted for 9.5% of Montenegro's GDP, similar to the EU27 level of 10.0% (18). Montenegro's healthcare expenditure as share of GDP was higher than all comparison countries, as shown in the graph below. The public healthcare expenditure stood at 6.6% of Montenegro's GDP and surpassed all comparison countries except for Slovenia and the EU27 level. The difference between the total and the public healthcare expenditure as share of GDP is almost 3 percentage points (pp) for Montenegro but only 2 pp for the EU average. This signifies that out-of-pocket spending (OOP) is higher in Montenegro, which could be partly related to expenses for diagnostic examinations in the private sector to avoid longer waiting lines in the public sector, as well as OOP spending for dental care. In 2022, a major reform took place in Montenegro, when the country's social health insurance system changed from being contributions-based to fully tax-funded (19). The total healthcare expenditure per capita in 2023 (PPP-adjusted) amounted to EUR 1,910 in Montenegro, which was similar to Bulgaria and Croatia, lower than Slovenia and the EU27, and higher than Serbia (18). The public healthcare expenditure was EUR 1,325, lower than all comparison countries except for Serbia, and similar to Bulgaria (18).

Healthcare expenditure as share of GDP in 2023



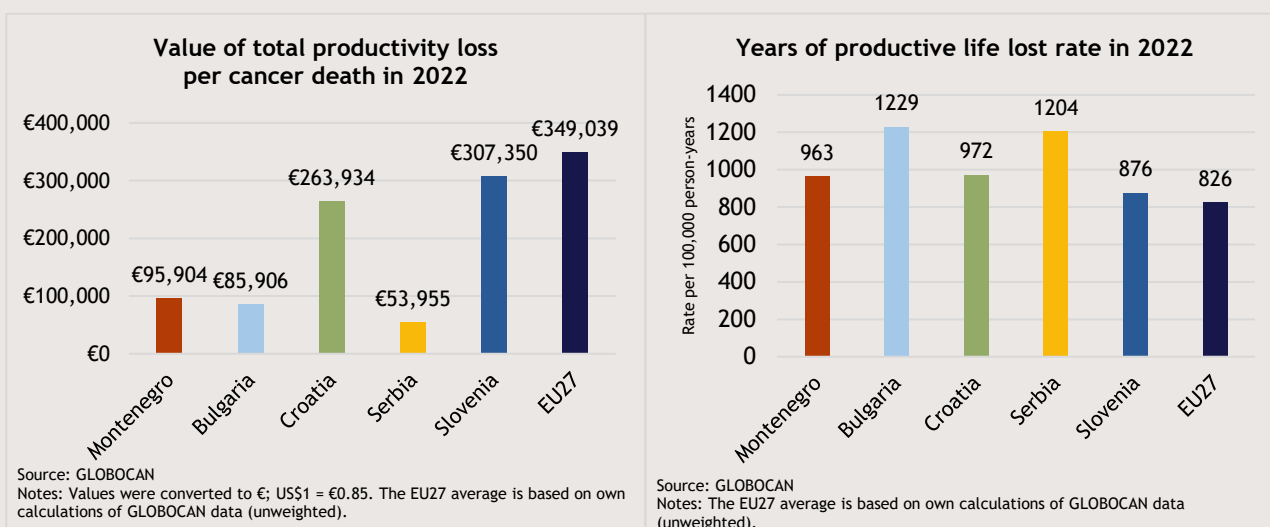
Healthcare expenditure per capita in € in 2023 (PPP-adjusted)



Specific data on cancer care spending in Montenegro are not available from the website of the Health Insurance Fund (20). In 2023, the estimated proportion of cancer care expenditure in the comparator countries and the EU27 was around 5-8% of the total health expenditure (21, 22).

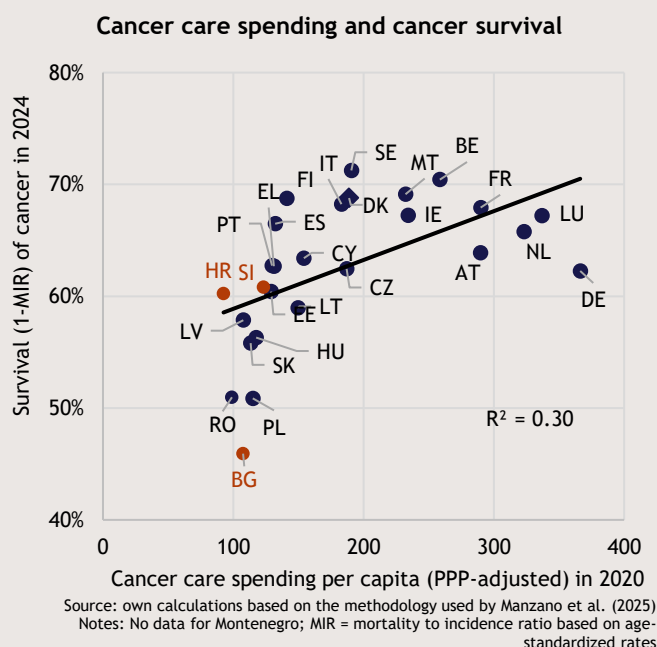
Costs of lost productivity

Data on the total economic burden of cancer in Montenegro are scarce. Productivity-loss indicators provide useful insight into one important dimension of the burden. According to 2022 IARC global estimates, the total productivity loss per cancer death (all cancer sites but non-melanoma skin) in Montenegro was EUR 95,904; this was higher than Serbia and Bulgaria, but lower than the rest of comparison countries (23). Cancer in Montenegro caused 963 years of productive life lost (YPLL) per 100,000 person-years in 2022 (23), which was higher than in Slovenia and the EU and likely reflects lower Montenegrin survival rates (see Disease burden section).



Health spending on cancer care & survival rates

The ultimate aim of health spending on cancer care is to improve patient outcomes, both in terms of survival and quality of life. The figure to the right offers a crude way of exploring the link between cancer care spending and patient outcomes across European countries; see Manzano et al. (2025) for clarification on methodology (22). The upward-sloping trend line suggests that countries with higher cancer care spending tend to achieve higher survival. In contrast, countries with low spending generally report lower survival (mostly in Central and Eastern Europe). Croatia and Slovenia achieve a survival level that is in line with their comparatively low spending level, whereas Bulgaria achieves comparatively low survival rates given their spending level. While the positive association shown in the graph does not prove causality, it is consistent with previous evidence showing that European countries investing more in cancer care tend to achieve better survival outcomes (24, 25).



The scattered pattern in the graph also underlines that spending alone is not enough. Patient outcomes are shaped by how resources are allocated and used across the entire care pathway. Strategic prioritization, such as early detection, timely diagnosis, and equitable access to effective treatment, is essential to translating spending into tangible survival benefits. Going forward, further gains in survival will likely depend on the broad adoption and expansion of effective technologies, many of which come at a higher cost. Health systems must therefore ensure that investments in cancer care are used in a cost-effective and outcome-oriented way. This means not only evaluating the value of new interventions but also identifying and addressing inefficiencies along the entire care pathway.

Recommendations

- Continue to invest in cancer care to enhance the quality of healthcare services. Ensure that increased spending is directed towards high-impact areas along the care pathway and addresses bottlenecks. This includes early detection, timely diagnosis, access to novel diagnostics and therapies, and care coordination (see the remaining KPIs in the report).
- Establish systematic, annual reporting of healthcare spending on cancer overall and by cancer type. The current lack of up-to-date cancer expenditure data hampers effective prioritization, value assessment, and resource planning.
- Apply a societal perspective in evaluating targeted investments in earlier detection and treatments in order to acknowledge and capture reductions in productivity losses induced by survival gains.
- Strengthen flexible work time arrangements to facilitate the reintegration of cancer patients and cancer survivors during and after treatment in order to reduce productivity losses.

Prevention

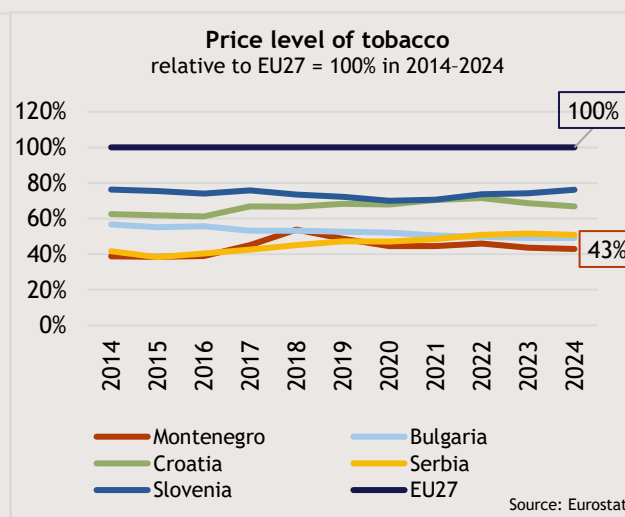
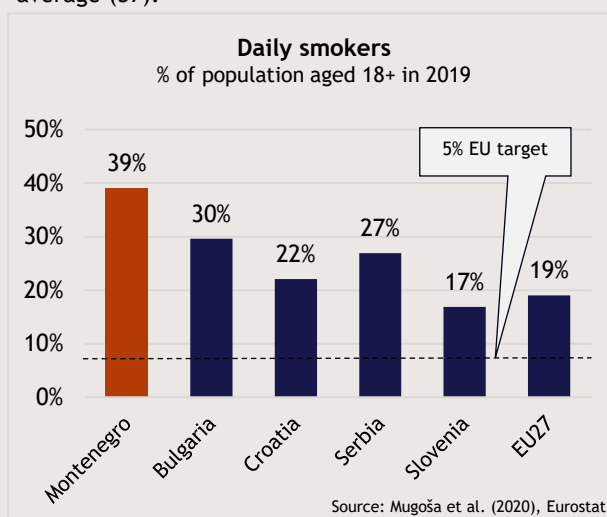
Tobacco smoking

Background

- Tobacco smoking is a major risk factor for developing various cancer types (26), and it has been linked to cancers at 12 different sites (27). Around 80% of all lung cancer cases are linked to cigarette smoking (28).
- The WHO suggests that implementing tobacco control measures can prevent one in five annual cancer cases (29). In 2008, the WHO introduced the MPOWER framework - a package of six evidence-based, cost-effective, high-impact policy measures to help countries reduce the demand for tobacco (30). As part of this framework, best practice for tobacco taxation is defined as a total tax share of at least 75% of the retail price (31). The EBCCP aims to help create a "Tobacco-Free Generation" where less than 5% of the population uses tobacco by 2040, compared to around 25% today (1).
- The Montenegrin NCCP 2026-2028 outlines the objective to reduce exposure to cancer risk factors through several activities (6). These include the implementation of at least three national multimedia campaigns per year on cancer risk factors, with the aim of achieving a reduction of 3 pp in adult smoking prevalence by 2028 (6). In addition, the NCCP 2026-2028 aims to establish counseling center networks for at-risk individuals in at least five health centers, with the ultimate aim of a 20% increase in users who report improvement in health indicators after counseling, including smoking cessation (6).

Current status in Montenegro

- Since 2019, Montenegro bans smoking in all public places through the Law on Limiting Use of Tobacco Products (32). However, implementation and control of this measure have weakened over time. The same law mandates warnings on tobacco products packages and bans all forms of advertising and promotion of tobacco products (32).
- In 2019, 40.4% of adults in Montenegro were current users (daily and occasional) of smoked tobacco products (40.2% in men and 40.7% in women) (32). Daily smokers constitute 39.2% of adults aged 18-85 (39.4% in men and 39.0% in women) (32). This is a higher smoking prevalence than all comparison countries and the EU27 average of 18% (33). According to WHO, current tobacco use prevalence in Montenegro has remained stable over time, from 36.6% in 2000 to an estimated 37.1% in 2025 (34).
- According to the 2025 WHO report on the global tobacco epidemic - Country profile for Montenegro, the total tax share of cigarettes was calculated to be 75.4% of the retail price, in line with the WHO recommendation of at least 75% (35, 36). However, there was no change noted in the affordability of cigarettes between 2014 and 2024 (35). The price level of tobacco in Montenegro has remained at around 40% of the EU average and only slightly increased from 39% in 2014 to 43% in 2024, meaning that tobacco is still two-fifths of the price as the EU average (37).



Recommendations

- Ensure the timely implementation of NCCP goals related to tobacco smoking by strengthening awareness and smoking cessation efforts. In addition, continue to raise excise taxes on tobacco products.
- Implement routine monitoring of tobacco smoking prevalence and attitudes in the population through national health surveys, including the collection of sociodemographic data, to inform targeted policy decisions.

Prevention

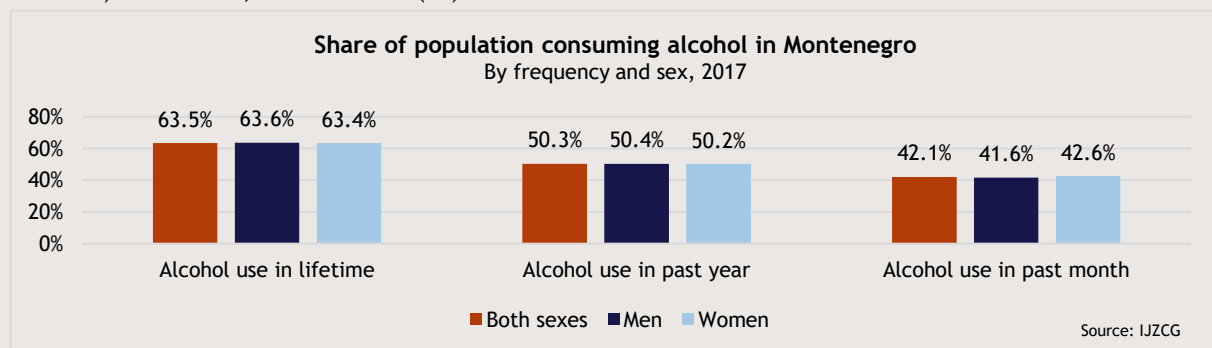
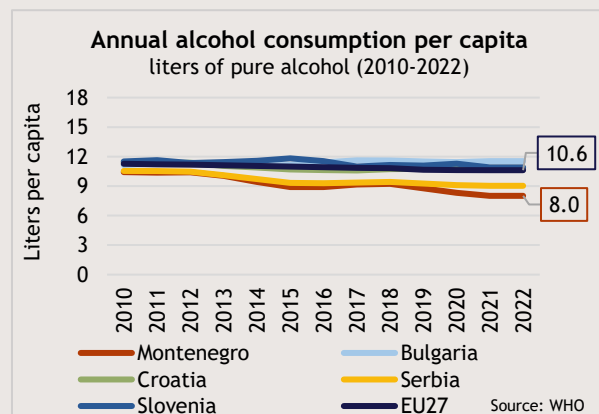
Alcohol consumption

Background

- Alcohol consumption is a major risk factor for noncommunicable diseases and caused 2.6 million deaths globally in 2019, including 4.3% of all cancer-related deaths. It is linked to several cancers, including breast, liver, colorectal, oral cavity, pharyngeal, laryngeal, and esophageal cancers (38).
- The WHO Global Alcohol Action Plan 2022-2030 sets a main global target of at least a 20% relative reduction in the harmful use of alcohol by 2030 (and an intermediate target of 10% reduction by 2025) compared to 2010. Progress toward these targets is measured through total alcohol per capita consumption, defined as the estimated volume of recorded and unrecorded alcohol consumed per person aged 15 and older in a calendar year, expressed in liters of pure alcohol (39). The EBCP supports the global target of a 10% reduction in harmful alcohol use by 2025 and commits to measures such as health warnings and nutrition labelling on alcoholic beverage packaging, stricter monitoring of online alcohol marketing, and support for evidence-based interventions in health care and the workplace (1).
- Alcoholism is highlighted in the Montenegrin NCCP 2026-2028 as a risk factor for cancer; the NCCP aims to implement awareness campaigns on cancer risk factors, including excessive alcohol consumption (6). No national strategy related to alcohol use is currently in place, after the expiration of the “Program for the Prevention of Harmful Use of Alcohol and Alcohol-Related Disorders 2022-2024” (40).

Current status in Montenegro

- In Montenegro, the alcohol consumption (in pure liters) decreased by 23% from 10.4 liters per capita in 2010 to 8.0 liters per capita in 2022 (41). This means that both the 2025 WHO target of a 10% reduction and the 2030 target of 20% reduction have already been achieved. Montenegro also had the lowest alcohol consumption per capita in 2022 among all comparison countries.
- Data on drinking patterns in Montenegro are scarce. The latest available data are derived from the report “Research on the quality of life, lifestyles and health risks of the residents of Montenegro in 2017” by the Institute of Public Health of Montenegro (IJZCG) (42). The results of the report show that drinking patterns in Montenegro are similar between men and women. Overall, half of the population (50.3%) reported that they consumed alcohol in the past year and around 42% reported alcohol use in the past month.
- Weekly binge drinking (5 drinks or more on at least one occasion) in Montenegro was reported by 4.3% of adult alcohol consumers in 2017, 3.8% in men and 4.8% in women (42). Although definitions differ, this is slightly higher than the prevalence of weekly heavy episodic drinking (more than consumption of 60g of pure ethanol on a single occasion) in the EU27, 3.7% of adults (43).



Recommendations

- Renew the national strategy on alcohol consumption with targets on population prevalence and ensure the implementation and evaluation of proposed NCCP 2026-2028 actions and their effects on alcohol consumption patterns.
- Implement routine monitoring of alcohol consumption prevalence and attitudes in the population through national health surveys, including the collection of sociodemographic data, to inform targeted policy decisions.

Prevention

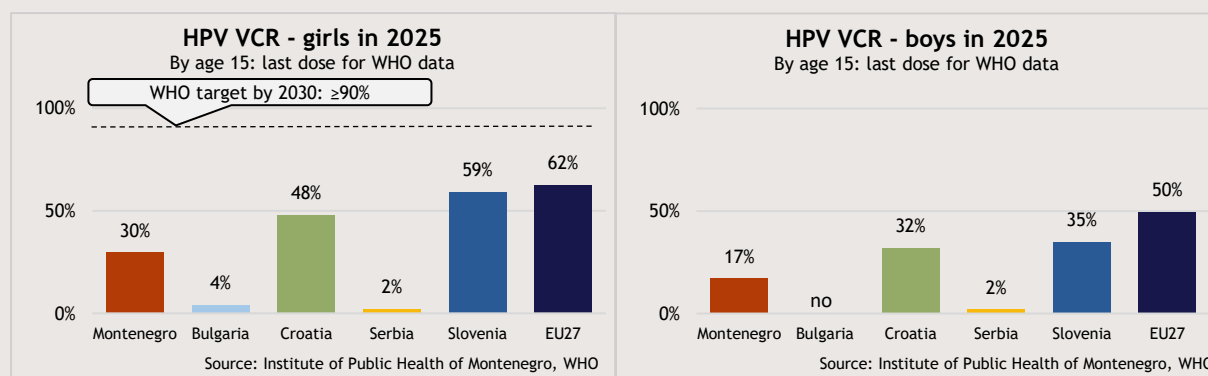
Vaccination against human papillomavirus (HPV)

Background

- HPV is a group of sexually transmitted viruses that causes around 2.5% of all cancers in women and men in Europe (44). Vaccines against HPV have been available since 2006. HPV vaccines have been found to be an effective and cost-effective way to prevent cervical cancer and other HPV-related cancers (44). According to the WHO, the best option is to vaccinate girls around age 9-14, just before they become sexually active (45). There is, however, value in vaccinating boys and older teenagers and young adults, at least up to the age of 26 because it can protect against a new infection or re-infection and block transmission to a new partner (44).
- As part of its global strategy to eliminate cervical cancer, the WHO calls on all countries to achieve a 90% HPV vaccination coverage rate (VCR; fully vaccinated) in girls by age 15 by 2030 (44). Reflecting the WHO's global target, the EBCP aims to achieve at least a 90% HPV VCR in girls in the EU by 2030, and to significantly increase the VCR in boys by the same year, although no specific target value has been set (1).
- The Montenegrin NCCP 2026-2028's activities in the area of primary prevention of cancer include the expansion of HPV vaccination coverage through information campaigns, improved vaccine availability, and education of parents and teachers, however, no specific VCR target value is set (6). The Montenegrin unofficial national HPV VCR targets are to reach 50% coverage in girls and 33% in boys (girls/boys turning 15 in the calendar year, 2011 cohort) until 2026 (46). HPV vaccination in Montenegro began in September 2022 and since February 2024 it is gender neutral (46). HPV vaccination is primarily recommended for girls and boys aged 9-14 (46, 47). HPV vaccination is also available for girls and boys aged 15-18 years and individuals aged 19-26, particularly those who have not had sexual intercourse. Vaccination for adults aged 27-45 is possible for HIV-positive individuals, transgender individuals, men who have sex with men (MSM), as well as women who are scheduled for cervical interventions or have had such interventions in the past month. Vaccination is carried out in healthcare facilities and its cost is covered by the public healthcare system (46).

Current status in Montenegro

- According to data from the HPV Vaccination dashboard of Montenegro (as of July 16, 2026), the HPV VCR among eligible age cohorts (primary cohorts; 2011-2016) was around 14% for both sexes - 21% of eligible girls and around 7% of eligible boys (46).
- According to data by the Institute of Public Health of Montenegro, in 2025 the HPV VCR among girls who turn 15 was 30%, almost half the EU average, 62% (WHO data HPV VCR by age 15; last dose). For boys turning 15, the HPV VCR was 17% in 2025, well below the EU average of 50% (48). Increases in the HPV VCR are noted for both sexes compared to 2024, when the VCR for girls turning 15 was 27%, whereas for boys it was 6% (46). All countries remain far from the 90% WHO target.
- Studies examining the behavior of people of Montenegro in relation to HPV vaccination were not identified. According to local experts, international anti-vaccination movements alongside stigma influence vaccination uptake in the country. Lack of data on parental or healthcare professionals' attitudes pose a challenge in the assessment of bottlenecks and opportunities that could inform targeted adaptations to the HPV vaccination program and relevant policy decisions.



Recommendations

- Raise public awareness on HPV through informational campaigns as part of the NCCP 2026-2028 cancer prevention awareness-raising efforts.

Early detection

Breast cancer screening

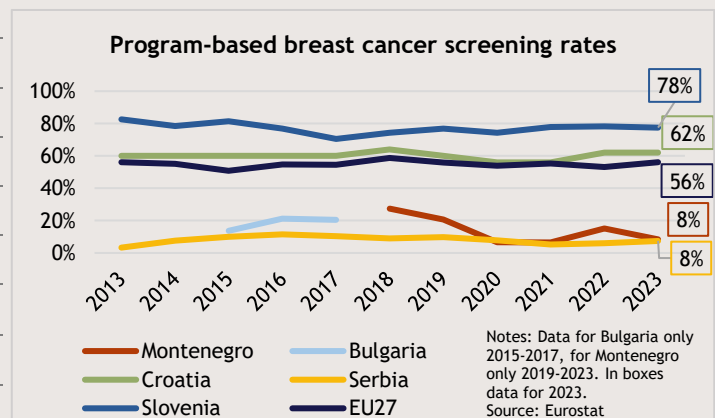
Background

- The goal of breast cancer screening is to detect a tumor as early as possible when it is still small and amenable to curative treatment (49). In early disease stages, survival rates are highest and treatment costs lowest (50).
- The EBCP includes the aim to invite 90% of the target population in each country for breast cancer screening by 2025 (1). The European quality assurance schemes stated that minimum 95% of eligible women should be invited to participate in the program (51) and that a screening participation rate above 75% is desirable (52). The 5th edition of the European Code Against Cancer endorsed digital mammography every two years for women aged 50-69 years, and consider implementing it also for women aged 45-49 years and 70-74 years (53).
- Montenegro implemented a breast cancer early detection program in December 2015 with personal phone invitations to women aged 50-69 years, registered with program-involved physicians, every two years. The program includes women from Podgorica, Danilovgrad, Cetinje, and Kolašin municipalities. Screening is conducted with mammography machines installed at the Center for Screening Mammography (CZSM) at the Clinical Center of Montenegro (KCCG) to all asymptomatic women and since January 2018 also to women with family history (54). The NCCP 2026-2028 aims to extend the program to national level, achieve 95% coverage and reduce regional inequalities, standardize screening procedures, and improve screening monitoring (6).

Current status in Montenegro

- According to the recent Public Health Institute of Montenegro report for 2024 (54), 31.6% of eligible women were invited of which 57% participated in the breast cancer early detection program in 2024, much below the desirable 95% and 75%, respectively. Across the participating centers, the highest percentage of the eligible women invited for screening was in Danilovgrad (36.8%) and the lowest in Kolašin (17.6%) and within the Ministry of Internal Affairs of Montenegro (9.4%), while the highest participation rate was observed in Cetinje (63.1%).
- Program-based data show that 8% of eligible women in Montenegro participated in the breast cancer screening program in 2023, which dropped from over 20% after 2020 (55). These values were comparable to those observed in Serbia and Bulgaria, but 48 to 78 pp lower than those observed for EU average, Croatia, and Slovenia.

Center	% invited	% participated
Cetinje	20.62	63.08
Danilovgrad	36.79	55.68
Kolašin	17.63	45.81
Podgorica	32.92	56.69
Ministry of Internal Affairs of Montenegro	9.36	136.36
Total in 2024	31.58	56.94



Recommendations

- Expand the program into a national population-based rather than focusing on only four municipalities to ensure equitable access to screening services and increase overall population coverage.
- Expand the invitation strategy beyond physician-registered women, update population contact information, and use multiple communication channels to improve reach (such as email with SMS notification, letter), particularly among marginalized and vulnerable populations who may otherwise be excluded from screening services.
- Improve healthcare workers' training and working conditions to enhance service quality, maintain program standards, and support workforce retention.
- Ensure needs-based education for health staff and increase investments in equipment to strengthen the capacity of health services to meet screening program demands effectively.
- Modernize and standardize patient information systems through full digitalization and the establishment of a screening registry to improve data quality, facilitate program monitoring, and support evidence-based decision-making.
- Implement communication, education, and advocacy campaigns to raise awareness of breast cancer prevention and screening, address barriers to participation, and improve screening uptake.

Early detection

Cervical cancer screening

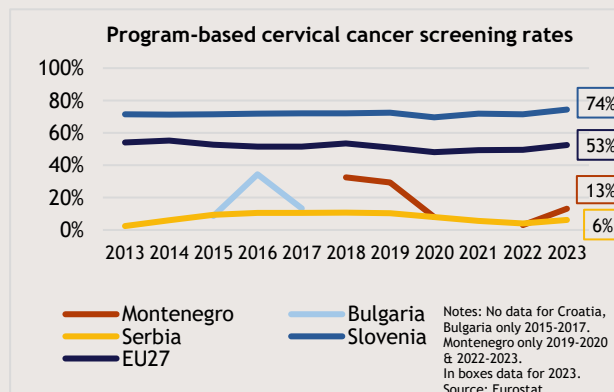
Background

- The aim of cervical cancer screening is to detect a cancer before the onset of symptoms or even earlier in its pre-stages. In early disease stages, survival rates are highest and treatment costs lowest (56, 57). The WHO and the European guidelines recommend the HPV test instead of the older Pap smear (cytology) test as primary test method (58, 59).
- The EBCP includes the aim to invite 90% of the target population in each country for cervical cancer screening by 2025 (1). The European guidelines for quality assurance recommended a participation rate above 85% as desirable (60). The 5th edition of the European Code Against Cancer endorsed using HPV tests in women aged 30-65 years at intervals no shorter than five years (53).
- Montenegro implemented an organized, population-based national program for early detection of cervical cancer with phone invitations for eligible women aged 30-50 years every five years in February 2018 (61). All health centers in Montenegro are responsible for screening, and the program covering referral, triage, screening, and diagnostics is managed by the Coordination Body of the National Program for Early Detection of Cervical Cancer. Screening is conducted with HPV DNA genotyping tests by 40 teams of gynecologists at the primary healthcare level (62). The NCCP 2026-2028 aims to achieve 95% screening coverage and reduce differences among the municipalities, prevent opportunistic testing, standardize sampling by providing training to practitioners, build electronic tracking systems of screening indicators and explore new screening approaches (6).

Current status in Montenegro

- According to the Public Health Institute of Montenegro report, 15.8% of eligible women were invited to cervical cancer screening in 2024, of which 80.5% women responded to the invitation. Of the responders, 87% women underwent testing, which resulted in 11% screening coverage (61).
- The highest invite rate in the national cervical cancer screening program in 2024 was for the 45-49 years age group, reaching 17.1%. The lowest rate of 14.5% was observed for the youngest targeted age group of 30-34 years, and also in women just above the current screening target age (50-54 years old) who had never undergone cervical cancer screening with 12.5% participation. The highest proportion of women invited to the screening was in Kolašin (53.5%) and Rožaje (39.5%) (63).
- Program-based data from Eurostat show that around 13% of eligible Montenegrin women participated in the cervical cancer screening program in 2023, which was lower than before 2020 (55). This rate was comparable to the rates observed for Bulgaria and Serbia but lower than the EU average of 53% and Slovenia that had 74% participation.

Age group	% invited	% responded
30-34	14.5	80.7
35-39	16.5	80.0
40-44	16.6	83.0
45-49	17.1	81.4
50-54	12.5	68.2
Total in 2024	15.8	80.5



Recommendations

- Update the national cervical cancer screening program and extend the screening age range to 30-65 years in line with evolving international guidelines and recommendations.
- Enhance invitation and outreach efforts to improve screening uptake among eligible women by introducing a centralized call center covering the entire target population and expanding communication channels to include text messages and email reminders with SMS reminders.
- Strengthen workforce capacity by increasing the availability of gynecologists and nurses through need-based health workforce planning and education, and consider introducing self-sampling as a practice to reduce the burden on the limited healthcare workforce.
- Ensure standardized staff education and training to maintain consistent screening quality, improve program efficiency, and support effective communication across screening centers.
- Strengthen the national screening monitoring system to ensure continuous, high-quality, and timely data collection and reporting, including through the establishment of a national screening registry.
- Implement a comprehensive communication and advocacy strategy to increase awareness of cervical cancer screening, reduce stigma, and improve participation among eligible women.

Early detection

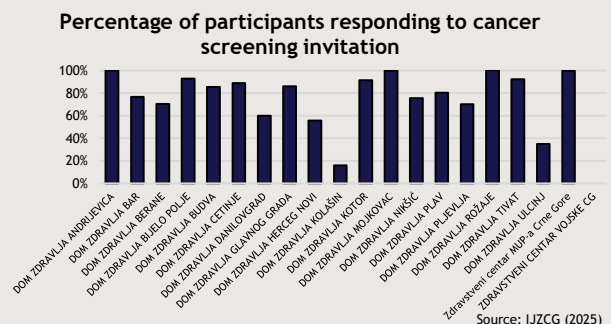
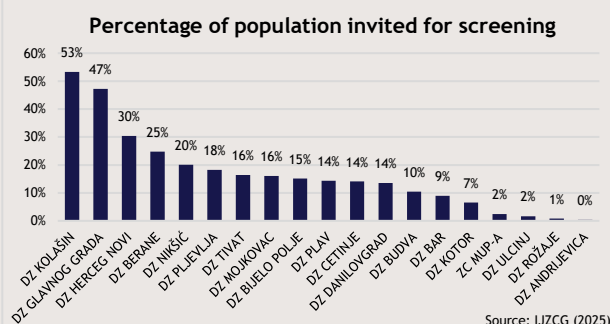
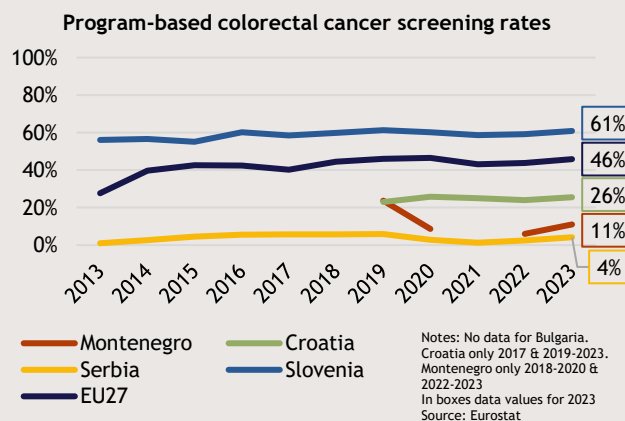
Colorectal cancer screening

Background

- Colorectal cancer is to a large extent curable if diagnosed early and if appropriate treatment is provided (64). Treatment costs are also lowest in early stages of the disease (57). There are multiple screening methods, including stool-based (e.g., fecal immunochemical test, FIT) and imaging-based tests (e.g., colonoscopy) (65).
- The EBCP includes the aim to invite 90% of the target population in each country for colorectal cancer screening by 2025 (1). The European guidelines for quality assurance state that a screening participation rate above 65% is desirable (66). The 5th edition of the European Code Against Cancer recommends using FIT tests every two years in people aged 50-74 years (53), in line with the European guidelines (67).
- Montenegro implemented a national, organized, population-based colorectal cancer early detection program in June 2013 with personal invitations to individuals aged 50-74 years insured by Health Insurance Fund every two years (68). Screening is conducted with FIT in 20 health centers in all eligible participants with an average risk (no personal risk factors/family history). The NCCP 2026-2028 sets up a goal to achieve 95% coverage and reduce national inequalities, standardize testing methods and quality, improve program capacity and monitoring systems and include more program implementers (6).

Current status in Montenegro

- In 2023, the Montenegrin screening participation rate based on program-based data from Eurostat was 11%, lower than in 2019 when the rate was 24% (55). Current rates are only higher than in Serbia, but 35 pp lower than the EU average.
- In 2024, a quarter of eligible population was invited to participate in colorectal cancer screening, 70 pp lower than the desired 95% (68). Of the municipalities, the highest rates were observed in Kolašin (53.3%) and Capital City Health Centre (47.3%), while the lowest rates were in Ulcinj (1.7%) and Andrijevića (0.3%). Fifteen out of 20 health centers had an above desirable response rate of 65%, averaging 80.8% of total invited participants. The lowest participation was observed for Kolašin (16.0%) and Ulcinj (34.7%). Overall, higher participation rate was observed among women in all age groups (68).



Recommendations

- Update and implement national guidelines based on the latest international recommendations, along with (i) introduction of invitation system for eligible individuals based on population lists through electronic or traditional methods (e.g., email, SMS, direct phone calls) with reminders and flexible booking of appointments, (ii) creation of a capacity plan for healthcare services to ensure smooth and uninterrupted execution of the screening program, (iii) implementation of an electronic database for individuals covered by the screening program to enable precise monitoring of screening coverage and to propose corrective measures in regions where screening effectiveness is suboptimal.
- Implement informational, educational, and counseling measures to reduce stigma and raise awareness of colorectal cancer risk factors and importance of early detection to improve participation, by organizing public campaigns and educational activities. Provide training to healthcare professionals to improve their skills in encouraging participation.

Diagnosis and treatment

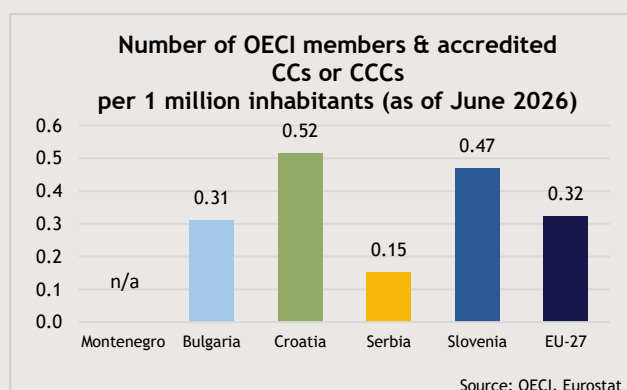
Comprehensive cancer centers

Background

- A comprehensive cancer center (CCC) is often characterized by its organizational quality, multidisciplinary, and integration of research into clinical care (translational research) (69). Patients diagnosed and treated in specialized cancer centers (including, but not limited to CCCs) generally have better access to advanced diagnostics, therapies and clinical trials, seeing better outcomes than those treated in general hospitals (70).
- There is currently no “universal definition” of a CCC. The Organisation of European Cancer Institutes (OECI) facilitates the accreditation of CCCs by means of quality standards which represent the European consensus for evaluating the performance of cancer centers (69). At the EU policy level, the OECI Accreditation and Designation (A&D) system is the most widely acknowledged and is therefore used here. Nevertheless, it should be noted that the European Society for Medical Oncology (ESMO) also offers an accreditation program (71), and some countries might solely rely on national accreditation systems, complicating international comparisons.
- The EBCP sets a target that 90% of eligible patients should have access to national CCCs linked through a new EU-wide network by 2030, aimed at facilitating the uptake of quality-assured diagnosis and treatment (1). To support this goal, the EUnetCCC Joint Action was launched in 2024, with the objective of establishing a network of certified CCCs across countries, including the development of a common EU certification scheme (72).
- The Montenegrin NCCP 2026-2028 outlines activities that will enhance diagnostics and treatment quality for cancer patients in the country, such as the development and standardization of national clinical guidelines and treatment protocols according to international guidelines, as well as capacity strengthening. In addition, the development of Standard Operating Procedures for the accreditation of some of the organizational units of the Clinical Center of Montenegro, including the Institute of Oncology, is planned (6).

Current status in Montenegro

- According to local experts, the Clinical Center of Montenegro (KCCG) in Podgorica is the main institute for treating cancer patients (73), apart from lung cancer patients who are mainly treated in the Special Hospital for Pulmonary Diseases “Dr Jovan Bulajić” in Brezovik, where the first (and only) multidisciplinary team (MDT) for lung cancer was established (74). In 2026, the government announced plans to develop a new University Clinical Center in Podgorica, expected to be completed by 2031 (75).
- There is currently no national accreditation system for healthcare institutions in Montenegro and no institution is accredited by OECI or ESMO (71, 76). The new “Law on Health Care” (“Zakon o zdravstvenoj zaštiti”), adopted in 2025, states the implementation of an accreditation system and quality control (6, 77).
- None of the comparison countries has a CCC (as of June 2026) and only Slovenia has one hospital which is a certified cancer center (CC)¹.



OECI-affiliated cancer centers and organizations (as of June 2026); Source: OECI (76).				
	Number of CCCs	Number of CCs	CCCs in accreditation	OECI members
Montenegro	0	0	0	0
Bulgaria	0	0	0	2
Croatia	0	0	0	2
Serbia	0	0	0	1
Slovenia	0	1	0	0

Recommendations

- Ensure the implementation of an accreditation system for healthcare institutions in line with the NCCP 2026-2028 activities and national legislation, by establishing a roadmap of actions required to achieve this. Guidelines, standards, or norms should specify what can/should be done at what level of health care, with requirements and quality standards defined.
- Explore opportunities for the KCCG to obtain OECI accreditation as a CC.

¹ According to the accreditation process by OECI, the criteria to be a certified cancer center (CC) are lower than for a CCC. For instance, the annual budget for cancer care, number of inpatient hospital beds, and clinical staff requirements are lower (69).

Diagnosis and treatment

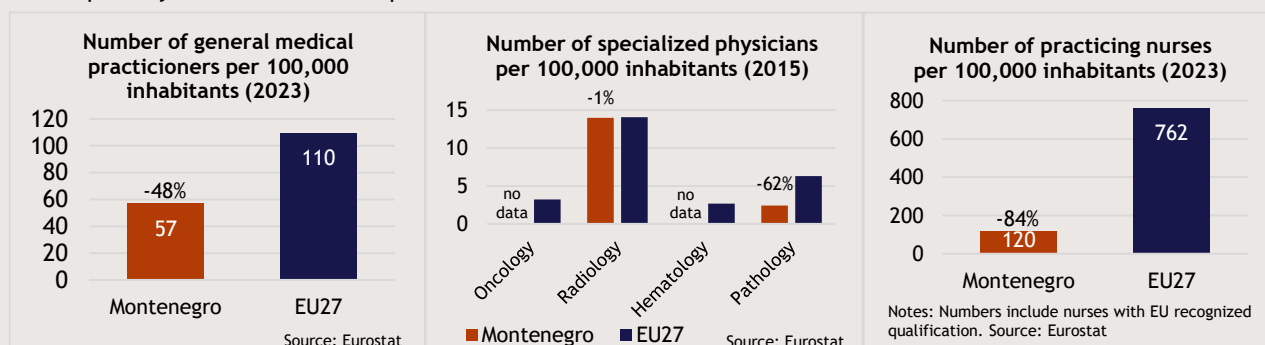
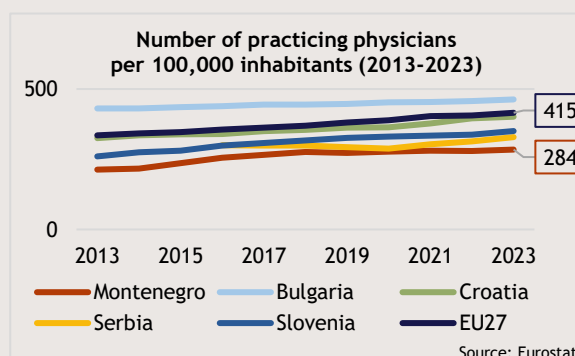
Health workforce

Background

- Modern cancer care is highly specialized and requires competence from different medical fields. This includes pathologists and diagnostic radiologists for the diagnosis of cancer, and surgeons, radiotherapists, medical oncologists, and hematologists for the treatment (78). General practitioners (GPs) play a key role in facilitating early diagnosis in primary care as they refer patients with signs and symptoms to the appropriate specialist (79). Nurses are involved throughout the care process, delivering patient education and treatment support (80).
- The Montenegrin NCCP 2026-2028 aims to improve the availability and quality of diagnosis and treatment services for cancer patients. Planned activities in this area include the formation or reorganization of oncology teams and the education of healthcare professionals according to EU standards; however, no numerical target associated with the health workforce is set (6).

Current status in Montenegro

- Montenegro has a low number of practicing physicians (of any specialty) per 100,000 inhabitants compared to the EU average and the comparator countries, as shown in the top figure. In 2023, Montenegro had 284 practicing physicians per 100,000, which was 32% below the EU average of 415 physicians per 100,000. However, the physician density in Montenegro increased by 11% from 2016 to 2023 (81).
- For GPs, the Montenegrin density of 57 GPs per 100,000 inhabitants was 48% below the EU average in 2023 (bottom left figure) (82). Given the importance of GPs in primary care for easy accessibility for people with signs and symptoms of cancer, this appears rather alarming.
- Recent data on the density of various oncology-related specialties in Montenegro are scarce (bottom middle figure). The number of physicians specialized in radiology per 100,000 inhabitants was similar to the EU average in 2015, whereas for pathology it was 62% lower than the EU average (83). Local experts report shortages in medical oncologists, with one reason being that many young professionals are training abroad and cannot support the country's needs. Currently about 6-7 medical oncologists at the KCCG are performing 30,000 controls per year. Although the situation is better for radiation oncologists, with 10 specialists at the KCCG, there are currently no physicians training in this specialty, suggesting staff shortages in the next 5-10 years. The better situation for radiologists can be explained by the more lucrative nature of this specialty in the private sector.
- The number of practicing nurses in Montenegro was 120 nurses per 100,000 inhabitants in 2023, 84% lower than the EU average of 762 nurses per 100,000 (bottom right figure) (81). The number of nurses in Montenegro increased by 29% from 93 nurses per 100,000 in 2022, however, older data were not available to assess the situation over a longer period. Local experts highlight that shortages in nurses are expected to worsen, particularly in positions relevant to cancer for which demand is low. This is supported by data that show a decrease in nursing graduates, from 55 in 2018 to 34 in 2022 (19).
- According to local experts, retaining healthcare workers in the public health sector is a challenge in Montenegro, especially after the COVID-19 pandemic.



Recommendations

- Develop a long-term oncology workforce and retention plan, and also incentivize the education of prospective workers. Implement a 5-10-year national strategy aligned with workforce needs for various specialty physicians but also for specialized nurses/technicians, etc., focusing on improved salaries and working conditions.

Diagnosis and treatment

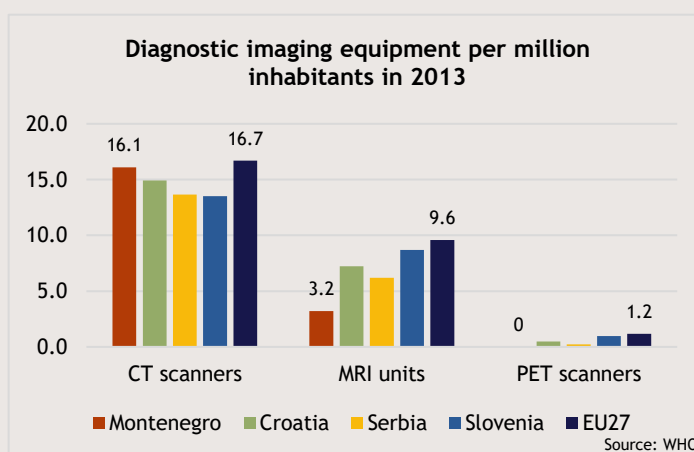
Diagnostic imaging equipment

Background

- Imaging equipment such as computed tomography scanners (CT), magnetic resonance imaging units (MRI), and positron emission tomography scanners (PET) are required throughout the cancer care journey including diagnosis, treatment, and follow-up to ensure accurate management decisions and optimal outcomes (84). The investment costs for scanners are high, and they require specialized medical personnel to operate them, which naturally restricts their availability. General guidelines or benchmarks regarding the ideal number of scanners per inhabitant or cancer patient do not exist (85). An undersupply of scanning units may lead to access problems in terms of geographic proximity and/or waiting times. Reducing the time between diagnosis and treatment start increases the chances of survival for many cancer types (86, 87).
- The Montenegrin NCCP 2026-2028 acknowledges radiology as an important component of cancer care and describes challenges such as delays in diagnosis and treatment initiation, shortages in modern equipment, and improper use of available equipment. Proposed activities include the establishment of national protocols and standardization of clinical pathways, resulting in ≤ 30 days from suspicion to confirmed diagnosis of the most common cancers for over 80% of patients (6). In addition, at least 80% of radiological examinations should use standardized protocols aligned with the European guidelines, while repeated and inadequate examinations should be reduced by at least 15% by 2028. The plan also aims for at least 50 radiologists to complete specialized training in oncological imaging by 2028. The procurement of modern diagnostic imaging equipment is included in the activities of the NCCP 2026-2028 (6).

Current status in Montenegro

- Up-to-date publicly available data on the availability and use of diagnostic imaging equipment in Montenegro are scarce. The latest identified WHO data are from 2013. At the time, there were 16.1 CT scanners per million inhabitants, close to the EU average of 16.7 CT scanners per million (88). The number of MRI units was 3.2 per million inhabitants, lower than the 9.6 units per million in the EU (89). In 2013, there were no PET scanners in Montenegro while the EU average was 1.2 PET scanners per million inhabitants (90).
- The lack of data hinders the assessment of the current situation as well as progress over time. Local experts explain that the current situation in Montenegro when it comes to CT scanners and MRI units is good, with easier access to MRI than CT. An emergency MRI can be performed within 15 days to one month, because the public and private sectors are connected. GPs can refer patients to the private sector if the examination cannot be performed within a month in the public sector.
- According to experts, there are no PET-CT machines in the country. Yet in collaboration with the International Atomic Energy Agency (IAEA), a new machine is expected to be available in three years. Patients in need of PET-CT are sent abroad, usually to Serbia or Türkiye, where the examination can be performed in two weeks. The cost for this is covered by the government and does not burden the patient.



Recommendations

- Strengthen diagnostic capacity by ensuring that investments in new equipment are aligned with national needs and priorities.
- Ensure there are enough trained medical professionals (e.g., radiologists, radiographers, nurses) to operate diagnostic equipment effectively and efficiently.

Diagnosis and treatment

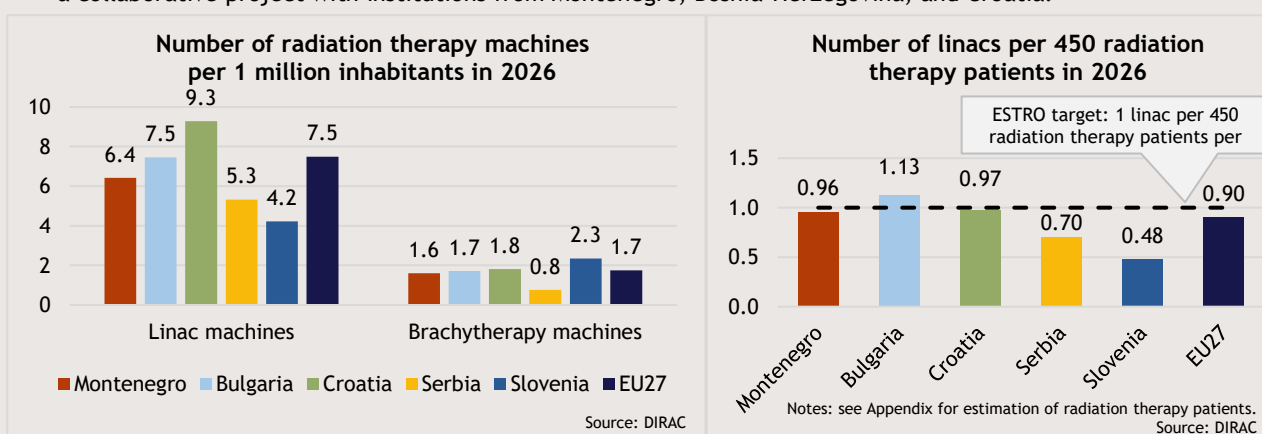
Radiation therapy equipment

Background

- Radiation therapy is essential in treating common cancers, with around 50% of all cancer patients requiring radiation therapy at some point during their treatment (91). The effectiveness of radiation therapy in targeting and eliminating tumors significantly influences patients' survival rates and quality of life (92, 93).
- Expanding access to radiation therapy requires both sufficient equipment and a qualified workforce to operate it. Strategic investments in infrastructure and specialist personnel are essential to ensure timely and equitable access to radiation therapy for all patients (94, 95).
- The European Society for Radiotherapy and Oncology (ESTRO), through the ESTRO-QUARTS capacity planning work, suggests a benchmark of one linear accelerator (linac) per 450 cancer patients requiring radiation therapy per year (96). This benchmark is widely referenced in radiation therapy capacity planning resources and is utilized as input by the International Atomic Energy Agency (IAEA) in regional capacity assessments (94).
- The Montenegrin NCCP 2026-2028 aims to increase the proportion of patients who initiate treatment within 30 days from diagnosis to 90% and that national guidelines for cancer treatment are followed in 100% of patients (6). However, no specific target is set regarding radiation therapy equipment.

Current status in Montenegro

- As of June 2026, Montenegro has 6.4 linacs per 1 million inhabitants, according to the IAEA's Directory of Radiotherapy Centers (DIRAC) (97). This is higher than Serbia and Slovenia, but lower than Bulgaria, Croatia, and the EU average of 7.5 linacs per 1 million. In terms of brachytherapy machines, Montenegro has 1.6 machines per 1 million, similar to Bulgaria, Croatia, and the EU average of 1.7 brachytherapy machines per 1 million (97). Montenegro has 0.96 linacs per 450 radiation therapy patients, on par with Croatia and lower than Bulgaria, but higher than Serbia and Slovenia, as well as slightly higher than the EU average (0.88). This leaves Montenegro slightly below the ESTRO target of 1 linac per 450 cancer patients requiring radiation therapy per year (see Appendix for clarification); Bulgaria is the only country that has reached this target.
- Montenegro has (as of June 2026) four linacs which are all located at the KCCG (97); two of the linac machines were acquired about 5-7 years ago and an additional one was received in 2026. According to local experts these are enough to cover the country's population needs, and the good situation is reflected in short waiting times for radiation therapy. A multidisciplinary team (MDT) meeting is usually conducted first and 10-14 days afterwards cancer treatment can start.
- Currently, brachytherapy is only used to treat cervical cancer, and the only machine is located at the KCCG. According to local experts, cervical cancer patients and those with other cancer types will get access to MRI image-guided brachytherapy (the current brachytherapy machine is not image-guided) in the near future through a collaborative project with institutions from Montenegro, Bosnia-Herzegovina, and Croatia.



Recommendations

- Develop and implement national guidelines to ensure optimal and timely access to radiation therapy - both linacs and brachytherapy, in line with NCCP 2026-2028 activities.
- Ensure a sufficient number of qualified specialists (now and also in the next 5-10 years) who can operate the machines to help improve access and utilization.

Diagnosis and treatment

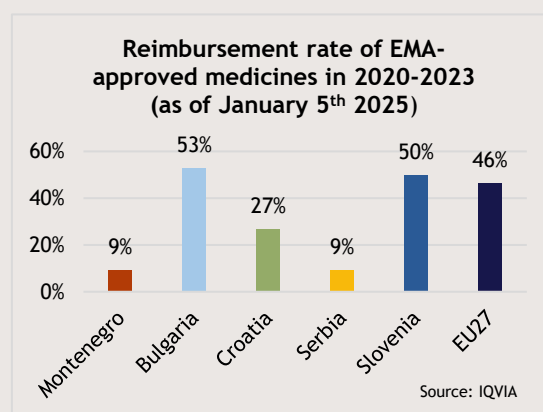
Novel cancer medicines

Background

- Novel cancer medicines introduced over the past decade have transformed treatment standards across many cancer types. More than 100 new cancer medicines have been approved by the European Medicines Agency (EMA) between 2015 and 2024 (22). These primarily include immunotherapies, which enhance the immune system's ability to attack cancer cells, and targeted therapies, which focus on specific mutations that drive tumor growth.
- Since Montenegro is not an EU member, Montenegrin authorities must both organize the regulatory approval and reimbursement approval of novel cancer medicines. Marketing authorization is issued by the Institute for Medicines and Medical Devices of Montenegro (CInMED), the regulatory body in the field of medicinal products and medical devices (98). Reimbursement is handled by the Health Insurance Fund of Montenegro (FZOCC) upon which medicines are added to the "List of Medicines" ("Liste lijekova") and become accessible to patients across the country (20).
- The Montenegrin NCCP 2026-2028 does not set a specific target related to novel cancer medicines (6).

Current status in Montenegro

- As of January 5th 2025, only 16 out of 173 all medicines (including non-cancer medicines) approved by the EMA between 2020 and 2023 were reimbursed in Montenegro (9%), which is the same level as Serbia, but lower than all other comparison countries and the EU average reimbursement rate of 46% (99). At the same time, only 36 of these 173 medicines had a marketing authorization in Montenegro, meaning that 20 authorized medicines had not been reimbursed. Montenegro is not part of the European Federation of Pharmaceutical Industries and Associations (EFPIA) W.A.I.T. Indicator, therefore, data specific to the reimbursement rate and time of novel cancer medicines are not available.
- According to local experts, the current reimbursement situation is mixed. The aim is for EMA-approved indications to also be approved in Montenegro. For breast and lung cancer, the reimbursement list coverage is at a good level, however, other cancers such as renal, liver or head & neck cancers have not seen any new reimbursed medicines in the past 15 years. Yet an important element that is not captured by the aforementioned reimbursement rate is the impact of the Rare Diseases Commission of the MoH. In practice, this commission handles all approvals of cancer medicines, yet the decisions are not reflected on the official List of Medicines by the FZOCC. Through decisions of this commission, patients may access several novel medicines even for, e.g., renal cancer, liver cancer, and melanoma.
- Public statistics on spending on cancer medicines are not available, but data on the broader category of "antineoplastic and immunomodulating agents" (ATC code L) show that spending increased from EUR 50 million in 2022 to EUR 75 million in 2024 in Montenegro (99). This corresponded to per-capita spending on these medicines of EUR 121 in Montenegro in 2024, which was higher than in Serbia (EUR 50) but lower than Croatia (EUR 150) and Slovenia (EUR 134).



Recommendations

- Streamline the national approval and reimbursement process (also in view of the role of the Rare Diseases Commission) and allocate resources into the expansion of the "List of Medicines", as well as its regular update.
- Prioritize the inclusion of a higher proportion of medicines that have a substantial clinical benefit and are cost-effective. Also ensure regular updates of clinical guidelines and an organization of healthcare that enables the inclusion of new medicines into routine clinical practice.

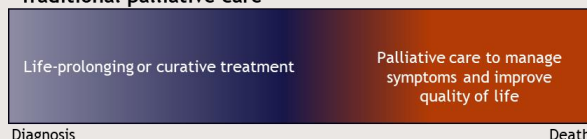
Survivorship

Palliative care services

Background

- In 2024, 18% of Montenegro's population was aged 65 or older (100). This share has been increasing most of the years since 1990 (8.0%), reflecting a sustained trend of population aging and pointing to a growing demand for palliative care (PC) services.
- Cancer is the most frequent cause of need for PC among life threatening or life-limiting health conditions (101). Within oncology, PC has traditionally had a strong focus at the end of life, but more recently there is a shift of integrating it earlier in the disease pathway (102).
- The availability of PC services in a country is one metric to assess the capacity and potential access to PC. Another metric is the degree to which PC is integrated with the overall healthcare system (103). The European Association for Palliative Care (EAPC) recommends two specialized PC services per 100,000 inhabitants (104).
- In 2022, the Government of Montenegro adopted a decision to integrate palliative care services into the national health system and deliver them through primary healthcare centers (105). The Healthcare Development Strategy 2023-2027 proposed the development of a model for the implementation of PC services (7); however, a 2025 report concluded that "the activity was not implemented due to limited staff capacity" (106). The NCCP 2026-2028 recognized the need to provide quality palliative care for cancer patients at the national level in line with the Health Care Act adopted in 2025 ("Official Gazette of Montenegro" No. 91/2025 (107)) (6), which aims to expand healthcare services, including palliative care.

Traditional palliative care

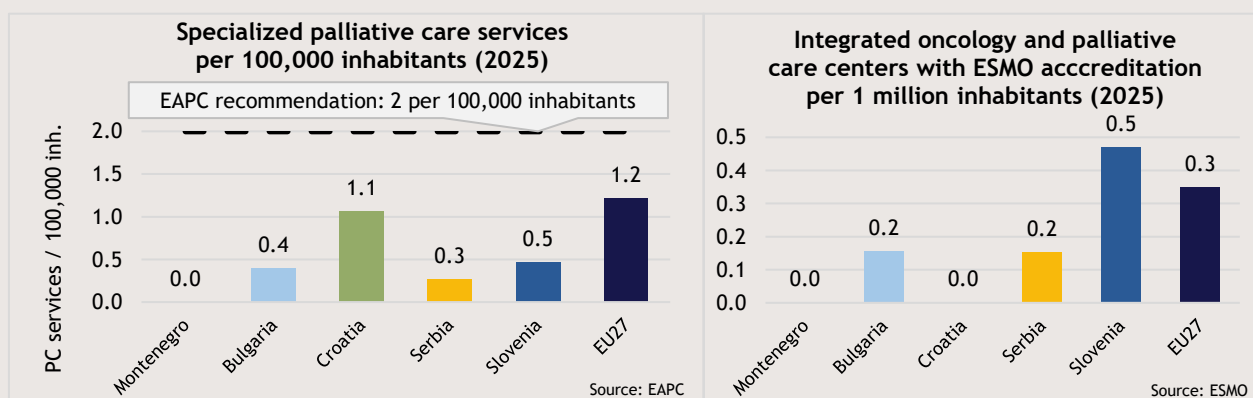


Integrated palliative care



Current status in Montenegro

- Montenegro had no specialized PC services (non-cancer specific) in 2019 and 2025 (101, 104). While Bulgaria, Serbia, and Slovenia had fewer than one specialized PC service per 100,000 population, both Croatia and the EU average had higher service densities. However, none of the comparison countries reached the recommended level of at least two specialized PC services per 100,000 population.
- Based on the voluntary ESMO accreditation system for cancer centers, a comparison of the integration of PC and cancer care can be made. Montenegro had no ESMO-designed center in 2025 (108), similar to Croatia. Slovenia and the EU average had twice the density of Bulgaria and Serbia.



Recommendations

- Align national efforts with the EAPC recommendation of two specialized PC services per 100,000 inhabitants.
- Create and integrate PC services into the national health system in response to the growing elderly population, with a focus on accessible and integrated care with treatment services to provide comprehensive support for cancer patients.

References

1. European Commission. Europe's Beating Cancer Plan: Communication from the Commission to the European Parliament and the Council. 2021.
2. Eurostat. Causes of death - deaths by country of residence and occurrence [hlth_cd_aro]. [Nov 9, 2025]. Available from: <https://ec.europa.eu/eurostat/data/database>.
3. Raičević Đ, Arsenović D. Regional patterns in cause-specific mortality in Montenegro, 1991-2019. Open Geosciences. 2025;17(1).
4. European Cancer Organisation. European Cancer Pulse - Tracking Inequalities in Cancer. [Oct 2, 2025]. Available from: <https://www.europeancancer.org/pulse>.
5. World Health Organization. Cancer prevention and control in the context of an integrated approach (WHA70.12). 2017.
6. Ministry of Health. PROGRAM PREVENCIJE I KONTROLE MALIGNIH BOLESTI SA AKCIONIM PLANOM 2026-2028. 2025.
7. Ministry of Health. Healthcare development strategy for 2023-2027. 2024.
8. World Health Organization. Cancer. [Aug 6, 2025]. Available from: <https://www.who.int/news-room/fact-sheets/detail/cancer>.
9. Institute of Public Health of Montenegro (IJZCG). Registar malignih neoplazmi. [May 8, 2026]. Available from: <https://www.ijzcg.me/me/registar-malignih-neoplazmi>.
10. Ervik M LM, Lam F, Colombet M, Ferlay J, Filho AM, Bray F. Global Cancer Observatory: Cancer Today (version 1.0). Lyon, France: International Agency for Research on Cancer; 2026 [Jul 14, 2026]. Available from: <https://gco.iarc.who.int/today>.
11. Ferlay J, Parkin DM, Steliarova-Foucher E. Estimates of cancer incidence and mortality in Europe in 2008. Eur J Cancer. 2010;46(4):765-81.
12. Ferlay J, Steliarova-Foucher E, Lortet-Tieulent J, Rosso S, Coebergh JW, Comber H, et al. Cancer incidence and mortality patterns in Europe: estimates for 40 countries in 2012. Eur J Cancer. 2013;49(6):1374-403.
13. Ferlay J, Colombet M, Soerjomataram I, Dyba T, Randi G, Bettio M, et al. Cancer incidence and mortality patterns in Europe: Estimates for 40 countries and 25 major cancers in 2018. Eur J Cancer. 2018;103:356-87.
14. Ervik M LM, Lam F, Colombet M, Ferlay J, Filho AM, Bray F. Global Cancer Observatory: Cancer Tomorrow (2024 estimates, version 1.0). Lyon, France: International Agency for Research on Cancer; 2026 [Jul 14, 2026]. Available from: <https://gco.iarc.who.int/tomorrow>.
15. Allemani C, Matsuda T, Di Carlo V, Harewood R, Matz M, Niksic M, et al. Global surveillance of trends in cancer survival 2000-14 (CONCORD-3): analysis of individual records for 37 513 025 patients diagnosed with one of 18 cancers from 322 population-based registries in 71 countries. Lancet. 2018;391(10125):1023-75.
16. Ellis L, Belot A, Rachet B, Coleman MP. The Mortality-to-Incidence Ratio Is Not a Valid Proxy for Cancer Survival. J Glob Oncol. 2019;5:1-9.
17. Hofmarcher T, Lindgren P, Wilking N, Jonsson B. The cost of cancer in Europe 2018. Eur J Cancer. 2020;129:41-9.
18. Eurostat. Health care expenditure by financing scheme (hlth_sha11_hf). [May 11, 2026]. Available from: <https://ec.europa.eu/eurostat/data/database>.
19. Mosca I, Tille F. Health Systems in Action (HSiA) Insights - Montenegro, 2024. Copenhagen: European Observatory on Health Systems and Policies, WHO Regional Office for Europe, 2025.
20. Fond za zdravstveno osiguranje Crne Gore [Health Insurance Fund of Montenegro]. [Jun 2, 2026]. Available from: <https://fzocg.me/>.
21. Hofmarcher T, Haggren I, Gralén K. Cancer Dashboard for Serbia. Lund, Sweden: IHE, 2026.
22. Manzano A, Svedman C, Hofmarcher T, Wilking N. Comparator report on cancer in Europe 2025 - Disease burden, costs and access to medicines and molecular diagnostics. Lund: IHE, 2025.
23. Kong Y, Lam F, Ervik M, Soerjomataram I. Global Cancer Observatory: Cancer Impact, Cancer Economics: Productivity Loss. Lyon, France: International Agency for Research on Cancer; 2025 [May 11, 2026]. Available from: https://gco.iarc.who.int/economics/productivity_loss/en.
24. Jönsson B, Hofmarcher T, Lindgren P, Wilking N. Comparator report on patient access to cancer medicines in Europe revisited. Lund: IHE, 2016.
25. Vrdoljak E, Bodoky G, Jassem J, Popescu R, Pirker R, Cufer T, et al. Expenditures on Oncology Drugs and Cancer Mortality-to-Incidence Ratio in Central and Eastern Europe. Oncologist. 2019;24(1):e30-e7.
26. World Health Organization. Tobacco. [May 20, 2025]. Available from: https://www.who.int/health-topics/tobacco#tab=tab_1.
27. US Department of Health and Human Services. A Report of the Surgeon General - The Health Consequences of Smoking - 50 Years of Progress. [May 20, 2025]. Available from: <https://archive.cdc.gov/#/details?url=https://www.cdc.gov/tobacco/sgr/50th-anniversary/index.htm>.
28. Wild CP, Weiderpass E, Stewart BW. World Cancer Report: Cancer Research for Cancer Prevention. Lyon, France: International Agency for Research on Cancer. 2020.
29. World Health Organization. Tobacco-related cancers and prevention. [May 20, 2025]. Available from: <https://cancerprevention.euro.who.int/european-code-against-cancer/tobacco-related-cancers-and-prevention/>.
30. World Health Organization. MPOWER. [May 20, 2025]. Available from: <https://www.who.int/initiatives/mpower>.
31. World Health Organization. Technical Manual on Tobacco Tax Policy and Administration. 2021.
32. Mugoša A, Laković T, Kovačević M, Čizmović M, Popović M. Adult Tobacco Use in Montenegro. Podgorica, Montenegro: The Institute of Socioeconomic Analysis, 2020.

33. Eurostat. Daily smokers of cigarettes by sex, age and educational attainment level [hlth_ehis_sk3e]. [May 26, 2026]. Available from: <https://ec.europa.eu/eurostat/data/database>.
34. World Health Organization (WHO). WHO global report on trends in prevalence of tobacco use 2000-2024 and projections 2025-2030. 2025.
35. World Health Organization (WHO). WHO report on the global tobacco epidemic - Country profile Montenegro. 2025.
36. World Health Organization (WHO). Promoting taxation on tobacco products. [May 28, 2026]. Available from: <https://www.who.int/europe/activities/promoting-taxation-on-tobacco-products>.
37. Eurostat. Purchasing power parities (PPPs), price level indices and real expenditures for ESA 2010 aggregates [prc_ppp_ind]. [Nov 11, 2025]. Available from: <https://ec.europa.eu/eurostat/data/database>.
38. World Health Organization. Global status report on alcohol and health and treatment of substance use disorders. Geneva: 2024.
39. World Health Organization. Global alcohol action plan 2022-2030. Geneva: 2024.
40. Ministry of Health. Program za prevenciju štetne upotrebe alkohola i alkoholom uzrokovanih poremećaja u Crnoj Gori za period od 2022. do 2024. godine sa Akcionim planom za 2022 - 2023. godinu 2021.
41. World Health Organization. Alcohol, total per capita (15+) consumption (in litres of pure alcohol) (SDG Indicator 3.5.2). [May 21, 2025]. Available from: [https://www.who.int/data/gho/data/indicators/indicator-details/GHO/total-\(recorded-unrecorded\)-alcohol-per-capita-\(15-\)-consumption](https://www.who.int/data/gho/data/indicators/indicator-details/GHO/total-(recorded-unrecorded)-alcohol-per-capita-(15-)-consumption).
42. Institute of Public Health of Montenegro (IJZCG). Research on the quality of life, lifestyles and health risks of the residents of Montenegro in 2017 [Istraživanje o kvalitetu života, životnim stilovima i zdravstvenim rizicima stanovnika Crne Gore u 2017. godini]. 2017.
43. Eurostat. Frequency of heavy episodic drinking by sex, age and educational attainment level [hlth_ehis_al3e]. [Jun 1, 2026]. Available from: <https://ec.europa.eu/eurostat/web/main/data/database>.
44. European Cancer Organisation. A Four Step Plan for Eliminating HPV Cancers in Europe. 2020.
45. World Health Organization. Cervical Cancer. [Jun 5, 2025]. Available from: <https://www.who.int/news-room/fact-sheets/detail/cervical-cancer>.
46. Institute of Public Health of Montenegro (IJZCG). HPV vaccination in Montenegro. [Jul 16, 2026]. Available from: <https://app.powerbi.com/view?r=eyJrIjojYzVmNGMyMzUtOGVhYi00NjUyLWFiOTYtN2UzZTNmMDMwZjkwliwIdCI6IjY2YjlxYzRmLTNjMGEtNDhLMCIiODQ3LWZkZjgxNTAyYzA1NSIsImMiOiI9>.
47. Institut za javno zdravlje Crne Gore (IJZCG). Program vakcinacije u Crnoj Gori. [Jun 4, 2026]. Available from: <https://www.ijzcg.me/me/vakcinacija>.
48. World Health Organization (WHO). Human Papillomavirus (HPV) vaccination coverage. [Jul 16, 2026]. Available from: [https://immunizationdata.who.int/global/wiise-detail-page/human-papillomavirus-\(hpv\)-vaccination-coverage](https://immunizationdata.who.int/global/wiise-detail-page/human-papillomavirus-(hpv)-vaccination-coverage).
49. World Health Organization. A short guide to cancer screening: increase effectiveness, maximize benefits and minimize harm. 2022.
50. Manzano A, Hofmarcher T. Improving the care of women with triple-negative breast cancer. Lund: IHE, 2023.
51. European Commission JRC. European Commission Initiative on Breast Cancer - European Quality Assurance Scheme for Breast Cancer Services. 2025 JRC140425.
52. European Commission, Directorate-General for Health and Consumer Protection, Perry N, Broeders M, de Wolf C, Törnberg S, et al. European guidelines for quality assurance in breast cancer screening and diagnosis, 4th edition. Luxembourg: Office for Official Publications of the European Communities, 2006.
53. International Agency for Research on Cancer. European Code Against Cancer, 5th Edition - 14 ways you can help prevent cancer. [Nov 8, 2025]. Available from: <https://cancer-code-europe.iarc.who.int/>.
54. Samardžić I. Report on the implementation of the organised screening programme for breast cancer in the period 01.01.2024 to 31.12.2024. Public Health Institute of Montenegro Center for Disease Control and Prevention, 2025.
55. Eurostat. Preventive cancer screenings - programme data [hlth_ps_prev]. [Oct 11, 2025]. Available from: <https://ec.europa.eu/eurostat/data/database>.
56. Cancer Research UK. Survival for cervical cancer. [Jun 5, 2025]. Available from: <https://www.cancerresearchuk.org/about-cancer/cervical-cancer/survival>.
57. McGarvey N, Gitlin M, Fadli E, Chung KC. Increased healthcare costs by later stage cancer diagnosis. BMC Health Serv Res. 2022;22(1):1155.
58. World Health Organization. New recommendations for screening and treatment to prevent cervical cancer. [Jun 12, 2025]. Available from: <https://www.who.int/news/item/06-07-2021-new-recommendations-for-screening-and-treatment-to-prevent-cervical-cancer>.
59. European Commission Joint Research Centre. European Commission Initiative on Breast Cancer (ECIBC), European Guidelines for Breast Cancer Screening and Diagnosis. [cited 2026].
60. European Commission: Directorate-General for Health and Food Safety, Karsa L, Dillner J, Suonio E, Törnberg S, et al. European guidelines for quality assurance in cervical cancer screening - Second edition - Supplements. Luxembourg: Publications Office of the European Union, 2015.
61. Nikčević Kovačević I. Report on the implementation of the national program for early detection of cervical cancer in Montenegro during 2024. Public Health Institute of Montenegro Center for disease Control and Prevention, 2025.
62. Institute of Public Health of Serbia. General information about screening. [Nov 11, 2025]. Available from: <https://www.skriningsrbija.rs/eng/general-information-about-screening/>.
63. Montenegro State Audit Institution. SUCCESS OF IMPLEMENTATION OF NATIONAL PROGRAMS FOR EARLY DETECTION OF MALIGNANT DISEASES. 2026 02-035/26-198/17.
64. Digestive Cancers Europe. Roadmap for the Prevention and Treatment of Colorectal Cancer in Europe. 2020.
65. Shaikat A, Levin TR. Current and future colorectal cancer screening strategies. Nat Rev Gastroenterol Hepatol. 2022;19(8):521-31.

66. European Commission: Executive Agency for Health and Consumers - Directorate-General for Health and Consumers, World Health Organization, Segnan N, Patnick J, von Karsa L. European guidelines for quality assurance in colorectal cancer screening and diagnosis, 1st edition. Luxembourg: Publications Office of the European Union, 2012.
67. European Commission Joint Research Centre. European Commission Initiative on Colorectal Cancer (ECICC), European Guidelines for Colorectal Cancer Screening and Diagnosis. [cited 2026].
68. Vujović A, Vuković-Leković J. Report on the implementation of the national programme for early detection of colon cancer in Montenegro for the period from 01.01.2024 to 31.12.2024. Public Health Institute of Montenegro Center for Disease Control and Prevention, 2025.
69. Organisation of European Cancer Institutes (OECI). Accreditation and Designation User Manual V. 3.2. 2019.
70. European Cancer Organisation & Organisation of European Cancer Institutes. Comprehensive Cancer Care Across the EU: Advancing the Vision. 2021.
71. European Society for Medical Oncology (ESMO). ESMO Designated Centres. [Jun 2, 2026]. Available from: <https://www.esmo.org/for-patients/esmo-designated-centres-of-integrated-oncology-palliative-care/esmo-designated-centres>.
72. European Commission. EUnetCCC. [Jun 25, 2025]. Available from: https://health.ec.europa.eu/non-communicable-diseases/cancer/europes-beating-cancer-plan-eu4health-financed-projects/projects/eunetccc_en.
73. Klinički centar Crne Gore (KCCG). [Jun 2, 2026]. Available from: <https://www.kccg.me/>.
74. Bolnica Brezovik. [Jun 2, 2026]. Available from: <https://brezovik.me/>.
75. cdm.me. French company to build new €313m KCCG in Podgorica, featuring 700 beds, 19 operating rooms and four CT scanners. [Jun 10, 2026]. Available from: <https://www.cdm.me/english/french-company-to-build-new-e313m-kccg-in-podgorica-featuring-700-beds-19-operating-rooms-and-four-ct-scanners/>.
76. Organisation of European Cancer Institutes (OECI). Membership. [Jun 2, 2026]. Available from: <https://www.oeci.eu/Membership.aspx>.
77. Službeni list Crne Gore broj 91/2025. Zakon o zdravstvenoj zaštiti. 2025.
78. Soukup T, Lamb BW, Arora S, Darzi A, Sevdalis N, Green JS. Successful strategies in implementing a multidisciplinary team working in the care of patients with cancer: an overview and synthesis of the available literature. J Multidiscip Healthc. 2018;11:49-61.
79. Saab MM, McCarthy M, O'Driscoll M, Sahm LJ, Leahy-Warren P, Noonan B, et al. A systematic review of interventions to recognise, refer and diagnose patients with lung cancer symptoms. NPJ Prim Care Respir Med. 2022;32(1):42.
80. Karam M, Chouinard MC, Poitras ME, Couturier Y, Vedel I, Grgurevic N, et al. Nursing Care Coordination for Patients with Complex Needs in Primary Healthcare: A Scoping Review. Int J Integr Care. 2021;21(1):16.
81. Eurostat. Health personnel [hlth_rs_prs2]. [Jun 2, 2026]. Available from: <https://ec.europa.eu/eurostat/web/main/data/database>.
82. Eurostat. Physicians by category [hlth_rs_physcat]. [Jun 2, 2026]. Available from: <https://ec.europa.eu/eurostat/web/main/data/database>.
83. Eurostat. Physicians by medical speciality - historical data (1985-2016) [hlth_rs_spec]. [Sep 2, 2025]. Available from: <https://ec.europa.eu/eurostat/data/database>.
84. Hricak H, Abdel-Wahab M, Atun R, Lette MM, Paez D, Brink JA, et al. Medical imaging and nuclear medicine: a Lancet Oncology Commission. Lancet Oncol. 2021;22(4):e136-e72.
85. Martella M, Lenzi J, Gianino MM. Diagnostic Technology: Trends of Use and Availability in a 10-Year Period (2011-2020) among Sixteen OECD Countries. Healthcare (Basel). 2023;11(14).
86. Hanna TP, King WD, Thibodeau S, Jalink M, Paulin GA, Harvey-Jones E, et al. Mortality due to cancer treatment delay: systematic review and meta-analysis. BMJ. 2020;371:m4087.
87. de Melo Gagliato D, Lei X, Giordano SH, Valero V, Barcenás CH, Hortobagyi GN, et al. Impact of Delayed Neoadjuvant Systemic Chemotherapy on Overall Survival Among Patients with Breast Cancer. Oncologist. 2020;25(9):749-57.
88. World Health Organization (WHO). Medical device: computed tomography units (per million population), total density. [Oct 2, 2026]. Available from: <https://www.who.int/data/gho/data/indicators/indicator-details/GHO/total-density-per-million-population-computed-tomography-units>.
89. World Health Organization (WHO). Medical devices: magnetic resonance imaging units (per million population), total density. [Oct 2, 2026]. Available from: <https://www.who.int/data/gho/data/indicators/indicator-details/GHO/total-density-per-million-population-magnetic-resonance-imaging>.
90. World Health Organization (WHO). Medical devices: positron emission tomography (per million population), total density. [Oct 2, 2026]. Available from: <https://www.who.int/data/gho/data/indicators/indicator-details/GHO/total-density-per-million-population-positron-emission-tomography>.
91. World Health Organization. New WHO/IAEA publication provides guidance on radiotherapy equipment to fight cancer. [Sep 12, 2025]. Available from: <https://www.iaea.org/newscenter/pressreleases/new-who/iaea-publication-provides-guidance-on-radiotherapy-equipment-to-fight-cancer>.
92. Arias F, Arraras JI, Asin G, Zarandona U, Mora I, Errasti M, et al. To What Extent Does Radiotherapy Improve the Quality of Life of Patients With Bone Metastasis?: A Prospective, Single-Institutional Study. Am J Clin Oncol. 2018;41(2):163-6.
93. Tchelebi LT, Shen B, Wang M, Gusani NJ, Walter V, Abrams R, et al. Impact of radiation therapy facility volume on survival in patients with cancer. Cancer. 2021;127(21):4081-90.
94. International Atomic Energy Agency (IAEA). Radiotherapy in Cancer Care: Facing the Global Challenge. 2017.
95. Laskar SG, Sinha S, Krishnatry R, Grau C, Mehta M, Agarwal JP. Access to Radiation Therapy: From Local to Global and Equality to Equity. JCO Glob Oncol. 2022;8:e2100358.
96. Slotman BJ, Cottier B, Bentzen SM, Heeren G, Lievens Y, van den Bogaert W. Overview of national guidelines for infrastructure and staffing of radiotherapy. ESTRO-QUARTS: work package 1. Radiother Oncol. 2005;75(3):349-54.

97. International Atomic Energy Agency (IAEA). DIRAC - Directory of Radiotherapy Centres: Countries. [Jun 2, 2026]. Available from: <https://dirac.iaea.org/Query/Countries>.
98. Institute for Medicines and Medical Devices of Montenegro (CInMED). [Jun 4, 2026]. Available from: <https://cinmed.me/en/>.
99. IQVIA. Availability of modern therapies in Montenegro health system compared with health systems of selected countries - Healthcare as Investment Initiative. 2025.
100. World Bank. Population ages 65 and above (% of total population). [Nov 9, 2025]. Available from: <https://data.worldbank.org/indicator/SP.POP.65UP.TO.ZS>.
101. Garralda E, Tripodoro VA, Ling J, Brennan J, Montero Á, Bastos F, et al. EAPC Atlas of Palliative Care in the European region 2025. Pamplona: EUNSA, 2025.
102. Gouldthorpe C, Power J, Taylor A, Davies A. Specialist Palliative Care for Patients with Cancer: More Than End-of-Life Care. *Cancers (Basel)*. 2023;15(14).
103. Arias-Casais N, Garralda E, Sánchez-Cárdenas MA, Rhee JY, Centeno C. Evaluating the integration of palliative care in national health systems: an indicator rating process with EAPC task force members to measure advanced palliative care development. *BMC Palliative Care*. 2021;20(1):36.
104. Arias-Casais N, Garralda E, Rhee JY, de Lima L, Pons JJ, Clark D, et al. EAPC Atlas of Palliative Care in Europe 2019. Vilvoorde: EAPC Press, 2019.
105. Government of Montenegro. Integrating palliative care into Montenegrin health system. 2022 [Jun 25, 2026]. Available from: <https://www.gov.me/en/article/integrating-palliative-care-into-montenegrin-health-system>.
106. Ministry of Health Montenegro. GODIŠNJI IZVJEŠTAJ O SPROVOĐENJU STRATEGIJE RAZVOJA ZDRAVSTVA 2023-2027. 2025.
107. Official Gazette of Montenegro No. 91/2025. Health Care Act. 2025.
108. European Society for Medical Oncology (ESMO). ESMO Accredited Designated Centres. [Jun 25, 2025]. Available from: <https://www.esmo.org/for-patients/esmo-designated-centres-of-integrated-oncology-palliative-care/esmo-accredited-designated-centres>.
109. Eurostat. Population on 1 January by age and sex [demo_pjan]. [Jun 2, 2026]. Available from: https://ec.europa.eu/eurostat/databrowser/explore/all/all_themes.
110. European Cancer Information System (ECIS). 2024 Estimates [Estimated incidence/mortality by country]. [Jun 23, 2026]. Available from: https://ecis.jrc.ec.europa.eu/data-explorer#.
111. Eurostat. Population on 1 January by age and sex [demo_pjan]. [Nov 10, 2025]. Available from: <https://ec.europa.eu/eurostat/data/database>.

Appendix: Methodology and sources for indicators

Governance	
National cancer plan	Analysis of the Montenegrin “Program for Prevention and Control of Malignant Diseases with Action Plan 2026-2028” (6). For dashboard overview: Presence of a national cancer plan in 2026 (no = 10% of benchmark; yes = at benchmark).
Disease burden	
New cases (incidence)	<u>1st, 2nd, 3rd, 4th, 5th graph</u>: GLOBOCAN (10). Cancer is specified as “all sites excluding non-melanoma skin cancer” (C00-C97/C44). <u>6th graph</u>: For both Montenegro and EU27, data were sourced from GLOBOCAN for 2024 (10), Ferlay et al. (2018) for 2018 (13), Ferlay et al. (2013) for 2012 (12) and Ferlay et al. (2010) for 2008 (11). Population data for 2008, 2012 and 2018 are sourced from Eurostat (109). Future numbers of cancer cases and population for 2025-2040 are taken from GLOBOCAN (14). Cancer is specified as “all sites excluding non-melanoma skin cancer” (C00-C97/C44). Estimates for 2008, 2013, 2018, and 2024 are based on different underlying historical data and should not be interpreted as a consistent time series. Only projections for 2024-2040 are internally comparable.
Deaths (mortality)	For dashboard overview: - Incidence age-standardized rate per 100,000 inhabitants in 2024, All sites but non-melanoma skin cancer. Estimated data from GLOBOCAN for Montenegro and EU27 (10). - Mortality age-standardized rate per 100,000 inhabitants in 2024, All sites but non-melanoma skin cancer. Estimated data from GLOBOCAN for Montenegro and EU27 (10).
Survival rates	<u>1st graph</u>: Survival rate = 1 - mortality-to-incidence. Incidence and mortality (age-standardized rates) were sourced from GLOBOCAN (10). For dashboard overview: Not applicable.
Economic burden	
Health spending on cancer	<u>1st graph</u>: Hofmarcher et al. (2020) (17). <u>2nd & 3rd graph</u>: Eurostat (18). Health care expenditure by financing scheme. Specification: financing schemes = All financing schemes, Government schemes and compulsory contributory health care financing schemes. 2023. Percentage of gross domestic product (GDP) (left graph) - Purchasing power standard per capita (right graph). Weighted EU average.
Productivity losses from cancer	<u>4th graph</u>: Value of total productivity loss per cancer death in 2022 among men and women from GLOBOCAN (23). Cancer is specified as “all sites excluding non-melanoma skin cancer” (C00-C97/C44). Values in USD were converted to EUR based on the rate USD 1 = EUR 0.85. Unweighted EU average based on GLOBOCAN data. <u>5th graph</u>: Calculation based on ECIS estimates for 2024 (110) and Manzano et al. (2025) (22). For dashboard overview: - Not applicable. - Number of potential years of working life lost (PYWLL) due to premature cancer death per 100,000 inhabitants aged 15-64 in 2023 (22).
Prevention	
Tobacco smoking	<u>1st graph</u>: Mugoša et al. (2020) (32) for Montenegrin data and Eurostat (33) for comparison countries. For Montenegro: Daily smokers of smoked tobacco products, age 18-85, both sexes, 2019. For comparison countries: Daily smokers of cigarettes by sex, age and educational attainment level. Specification: Daily smokers total, all education levels, all sexes, age class 18 years or over, 2019. Weighted EU average. <u>2nd graph</u>: Eurostat (37). Purchasing power parities, price level indices, nominal and real expenditures by analytical categories - based on COICOP 1999. Specification: Price level indices (EU27_2020=100), analytical categories = tobacco, 2014-2024. Weighted EU average. For dashboard overview: Daily smokers of cigarettes in 2019 in Montenegro benchmarked against the EBCP target (1).
Alcohol consumption	<u>1st graph</u>: WHO (41). Alcohol, total per capita (15+) consumption (in liters of pure alcohol) (SDG Indicator 3.5.2). Specification: 2010-2022. Unweighted EU average. <u>2nd graph</u>: IJZCG (42). Prevalence of alcohol use by frequency and sex among adults (aged 15-64) in 2017 in Montenegro. For dashboard overview: Reduction in per capita alcohol consumption (liters) in 2022 relative to 2010 levels (41).
HPV vaccination	<u>1st graph</u>: Data for Montenegro were taken from the HPV vaccination dashboard of the Institute of Public Health of Montenegro and refer to girls who are turning 15 years old in the calendar year (46). Data for the rest of the countries were derived from WHO (48). Specification: HPV vaccination coverage by age 15, last dose, females. Unweighted EU average. Data for all countries refer to 2025. <u>2nd graph</u>: Data for Montenegro were taken from the HPV vaccination dashboard of the Institute of Public Health of Montenegro and refer to boys who are turning 15 years old in the calendar year (46). Data for the rest of the countries were derived from WHO (48). Specification: HPV vaccination coverage by age 15, last dose, males. Unweighted EU average with data missing for Bulgaria, Lithuania and Spain. Data for all countries refer to 2025. For dashboard overview: HPV vaccination coverage among girls turning 15 years old in Montenegro in 2025 (46).
Early detection	
Breast cancer screening	<u>1st graph</u>: data adapted from Report on the implementation of the organized screening program for breast cancer in the period 01.01.2024 - 31.12.2024 (54) from Table 1: Number of women invited,

	responded and photographed in the breast cancer screening program for the period 01.01.2024 - 31.12.2024. <u>2nd graph:</u> Eurostat (55). Specification: Preventive cancer screenings - program data; Malignant neoplasm of breast; Females. Numbers show the share of women who have been screened for breast cancer within the past two years (or per national screening interval), presented as a proportion of those eligible for an organized program in the given country. Unweighted EU average. For dashboard overview: Program-based breast cancer screening rate in 2023 (55).
Cervical cancer screening	<u>1st graph:</u> data adapted from Report on the implementation of the National Program for Early Detection of Cervical Cancer in Montenegro during 2024 (61) Table 3. Number of women in the target population, number and proportion of invited, responded, sampled swabs and positive results HPV testing by age group in Montenegro for the period 01.01-31.12.2024. <u>2nd graph:</u> Eurostat (55). Specification: Preventive cancer screenings - program data; Malignant neoplasm of cervix uteri; Females. Numbers show the share of women who have been screened for cervical cancer within the previous three years (or per national screening interval), presented as a proportion of those eligible for an organized program in the given country. Unweighted EU average. For dashboard overview: Program-based cervical cancer screening rate in 2023 (55).
Colorectal cancer screening	<u>1st graph:</u> Eurostat (55). Specification: Preventive cancer screenings - program data; Malignant neoplasm of colon, rectosigmoid junction, rectum, anus and anal canal; males and females ("Total"). Numbers show the share of men and women who have been screened for colorectal cancer within the past two years (or per national screening interval), presented as a proportion of those eligible for an organized program in the given country. Data unavailable for AT, BG, CY, EL, PL, PT, and RO for all years. Unweighted EU average. <u>2nd and 3rd graph:</u> reproduced from Report on the implementation of the National Program for Early Detection of Colon Cancer in Montenegro for the period from 01.01.2024 - 31.12.2024 (68) chart 1: Percentage of invited participants in the screening program by health centers in Montenegro for the period 01.01-31.12.2024. and chart 4: Percentage of participants responding by health centers for the period 01.01-31.12.2024. For dashboard overview: Program-based colorectal cancer screening rate in 2023 (55).
Diagnosis and treatment	
Comprehensive cancer centers	<u>1st graph:</u> Number of centers and organizations based on OECI membership status as of June 2026 (76). For calculations of numbers per 1 million inhabitants, Eurostat population data on 1 January 2025 were used (109). <u>Table:</u> OECI (76). Number of OECI-affiliated centers and organizations as of June 2026. For dashboard overview: Number of OECI-affiliated centers and organizations per 1 million inhabitants as of June 2026 (76).
Health workforce	<u>1st graph:</u> Eurostat (81). Health personnel. Specification: Practising; Physicians; per hundred thousand inhabitants. Unweighted EU average with missing data for Greece, Portugal, Slovakia and missing values in certain years for other countries approximated by latest available year. <u>2nd graph:</u> Eurostat (82). Physicians by category. Specification: Generalist medical practitioners; per hundred thousand inhabitants. Unweighted EU average with missing data for Slovakia and missing values in certain years for other countries approximated by latest available year. <u>3rd graph:</u> Eurostat (83). Physicians by medical speciality - historical data (1985-2016); Radiology, Haematology, Pathology; per hundred thousand inhabitants. Unweighted EU average with missing data for Czechia, Denmark, Hungary, Finland, Sweden, and Slovakia for all specialties and Netherlands for hematology. <u>4th graph:</u> Eurostat (81). Health personnel. Specification: Practising; Nurses (EU recognised qualification); per hundred thousand inhabitants. Unweighted EU average with missing data for Portugal and Slovakia and missing values in certain years for other countries approximated by latest available year. For dashboard overview: Mean of the two relative differences in practicing physicians and nurses per 100,000 inhabitants in 2023 (81).
Diagnostic imaging equipment	<u>1st graph:</u> WHO (88-90).Data for 2013. Specification: Medical device: computed tomography units (per million population), total density; Medical devices: magnetic resonance imaging units (per million population), total density; Medical devices: positron emission tomography (per million population), total density. CT data were missing for: Belgium, Bulgaria, France, Germany, Italy, Latvia, Slovakia and Sweden. MRI data were missing for Belgium, Bulgaria, Germany, Italy, Latvia, Slovakia and Sweden. PET data were missing for Belgium, Bulgaria, France, Germany, Italy, Slovakia, Spain and Sweden. The EU average was calculated based on the 27 EU Member States as constituted today, to ensure consistency across the dashboard. The composition of the EU was different in 2013. Unweighted EU average. For dashboard overview: Sum of the number of CT, MRI, PET scanners per 100,000 inhabitants in 2013.
Radiation therapy equipment	<u>1st graph:</u> IAEA DIRAC (97). Linac = "MV therapy (He Photon And Electron Beam Rt)", Brachytherapy = "Brachy Therapy Incl EI". Data for 2026 or latest available year. Data for Kosovo were removed from Serbian data. Population data were sourced from Eurostat (109). Weighted EU average. <u>2nd graph:</u> own calculations based on IAEA DIRAC (97). Linac = "MV therapy (He Photon And Electron Beam Rt)". Data for 2026 or latest available year. Data for Kosovo were removed from Serbian data. Estimates of annual patients requiring radiation therapy were derived from cancer incidence (2024, all sites excluding non-melanoma skin, from IARC-GLOBOCAN (10)), assuming a radiation therapy utilization of 50% and applying a 1.25 retreatment factor; see Slotman et al. (2005) (96). Weighted EU average.

	<u>For dashboard overview:</u> Number of linacs per 450 radiation therapy patients in 2026 (10, 97).
Novel cancer medicines	<u>1st graph:</u> IQVIA (99). Specification: All products; availability rate (%). Data as of January 5th, 2025; data refer to EMA medicine approvals in 2020-2023. For most countries, local availability is defined as the inclusion of a medicine centrally approved by the EMA in a national or regional public reimbursement list. The EFPIA data only refer to new medicines and not new indications of already approved medicines. <u>For dashboard overview:</u> Reimbursement rate of novel cancer medicines in 2025 (99).
Survivorship	
Palliative care services	<u>1st graph:</u> EAPC Atlas of Palliative Care (101). Palliative care specialized services per 100,000 inhabitants, p.71. Unweighted EU average. <u>2nd graph:</u> ESMO website (108). ESMO Accredited Designated Centers. Population data were sourced from Eurostat (111). <u>For dashboard overview:</u> Number of specialized palliative care services per 100,000 inhabitants in 2025 (101).

