Country Cancer Profile 2025

European Commission

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The Country Cancer Profile Series

The European Cancer Inequalities Registry is a flagship initiative of Europe's Beating Cancer Plan. It provides sound and reliable data on cancer prevention and care to identify trends, disparities and inequalities between Member States, regions and population groups. The Country Cancer Profiles identify strengths, challenges and specific areas of action for each of the 27 EU Member States, Iceland and Norway, to guide investment and interventions at the EU, national and regional levels under Europe's Beating Cancer Plan. The European Cancer Inequalities Registry also supports Flagship 1 of the Zero Pollution Action Plan. The Profiles are the work of the OECD in co-operation with the European Commission. The team is grateful for the valuable inputs received from national experts and comments provided by the OECD Health Committee and the EU Thematic Working Group on Cancer Inequality Registry.

Data and information sources

The data and information in the Country Cancer Profiles are based mainly on national official statistics provided to Eurostat and the OECD, which were validated to ensure the highest standards of data comparability. The sources and methods underlying these data are available in the Eurostat Database and the OECD Health Database.

Additional data and information also come from the European Commission's Joint Research Centre (EC-JRC), the EU statistics on income and living conditions (EU-SILC) Survey, the World Health Organization (WHO), the International Agency for Research on Cancer (IARC), the International Atomic Energy Agency (IAEA), the European Society for Paediatric Oncology (SIOPE), the European Union Agency for Fundamental Rights (FRA LGBTIQ), the Health Behaviour in School-aged Children (HBSC) survey as well as from the 2023 Country Health and Cancer Profiles, and other national sources (independent of private or commercial interests). The calculated EU averages are weighted averages of the 27 Member States unless otherwise noted. These EU averages do not include Iceland and Norway. Mortality and incidence rates are age-standardised to the European standard population adopted by Eurostat in 2013.

Purchasing power parity (PPP) is defined as the rate of currency conversion that equalises the purchasing power of different currencies by eliminating the differences in price levels between countries.

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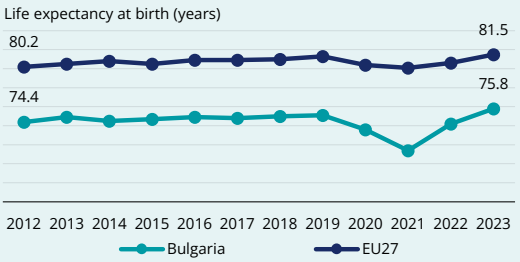
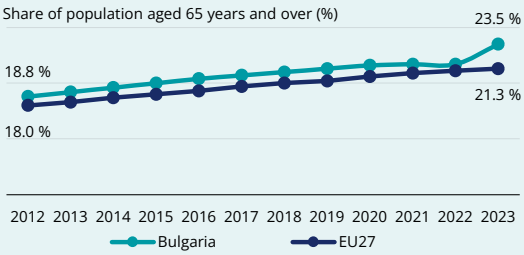
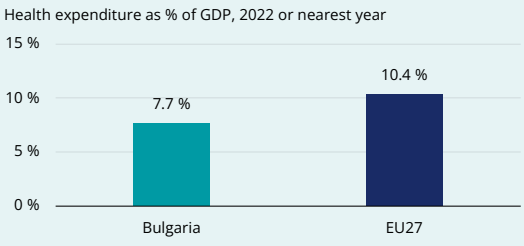
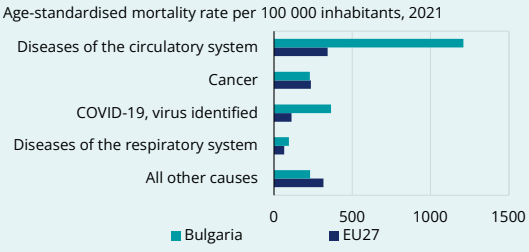


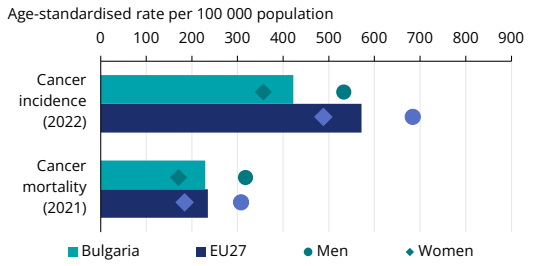






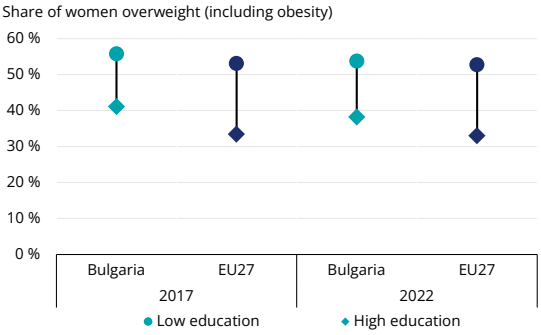
Source: Eurostat Database.

1. Highlights



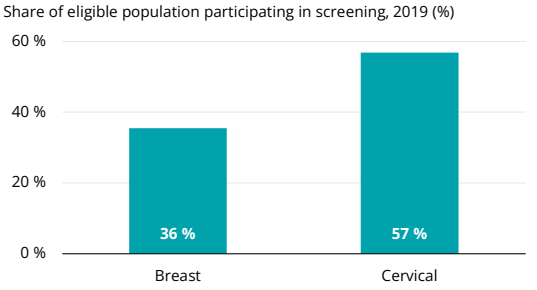
Cancer in Bulgaria

Estimated cancer incidence rates in 2022 were lower than the EU averages for both men and women in Bulgaria, and cancer mortality rates in 2021 were close to the EU averages. However, Bulgaria is one of only two EU countries to have experienced an increase in cancer mortality over the past decade; it decreased in all other countries. Bulgarian men have a substantially higher cancer burden – both incidence and mortality – than Bulgarian women. In 2023, Bulgaria adopted its first National Cancer Plan 2021-27 to improve cancer prevention and control.



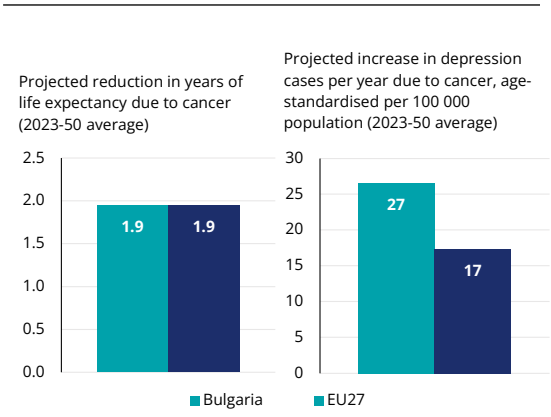
Risk factors and prevention policies

In Bulgaria, high prevalence of cancer risk factors starts from childhood and adolescence and continues through to adulthood. The country has among the worst rates for most cancer risk factors – including smoking, alcohol consumption, dietary habits, low physical activity, low human papillomavirus vaccination and air pollution – in the EU. While prevalence of overweight and obesity has decreased over time, the social gradient remains high. Bulgarian women with lower education levels are 40% more likely to be overweight. To address cancer risk factors, Bulgaria adopted the National Programme for the Prevention of Chronic Non-Communicable Diseases 2021-25, and in April 2024 it approved the National Health Strategy 2030.



Early detection

Early detection of cancer in Bulgaria is a cause for concern. Unlike most other EU countries, Bulgaria does not have population-based screening programmes for breast, colorectal and cervical cancers, which explains the low screening participation rates. In 2019, the proportion of women of screening age receiving mammography over the past two years was 36%. Cervical cancer screening coverage among women aged 20-69 was 57% in 2019. The National Cancer Plan 2021-27 proposes introduction of population-based cancer screening programmes for colon, breast, cervical and prostate cancer.



Cancer care performance

Challenges to accessibility of cancer care in Bulgaria are caused by out-of-pocket payments for cancer services, workforce shortages, and uneven distribution of specialised hospitals and diagnostic centres across the country. However, the supply of radiotherapy equipment doubled between 2012 and 2022. While Bulgaria recently updated medical standards in cancer care and put in place approval procedures for hospitals and oncology centres, the ongoing reorganisation of the Bulgarian Cancer Registry impedes monitoring and improving of cancer care quality. For the period 2023-50, cancer is expected to take a substantial toll on the mental health of the population.

2. Cancer in Bulgaria

Cancer incidence in Bulgaria is low compared to the EU average

According to the European Cancer Information System (ECIS) of the Joint Research Centre based on incidence trends from pre-pandemic years, around 31 485 new cancer cases were expected in Bulgaria in 2022. Age-standardised cancer incidence rates in Bulgaria were the lowest among EU countries, at 356 per 100 000 for women (compared to 488 per 100 000 across the EU) and 533 per 100 000 for men (compared to 684 per 100 000 across the EU). The low incidence rates are probably a result of under-registration, however, as the Bulgarian Cancer Registry was not working at full capacity from 2020, and it ceased functioning in 2023. According to ECIS, it is estimated that cancer cases will increase by 3% by 2040.

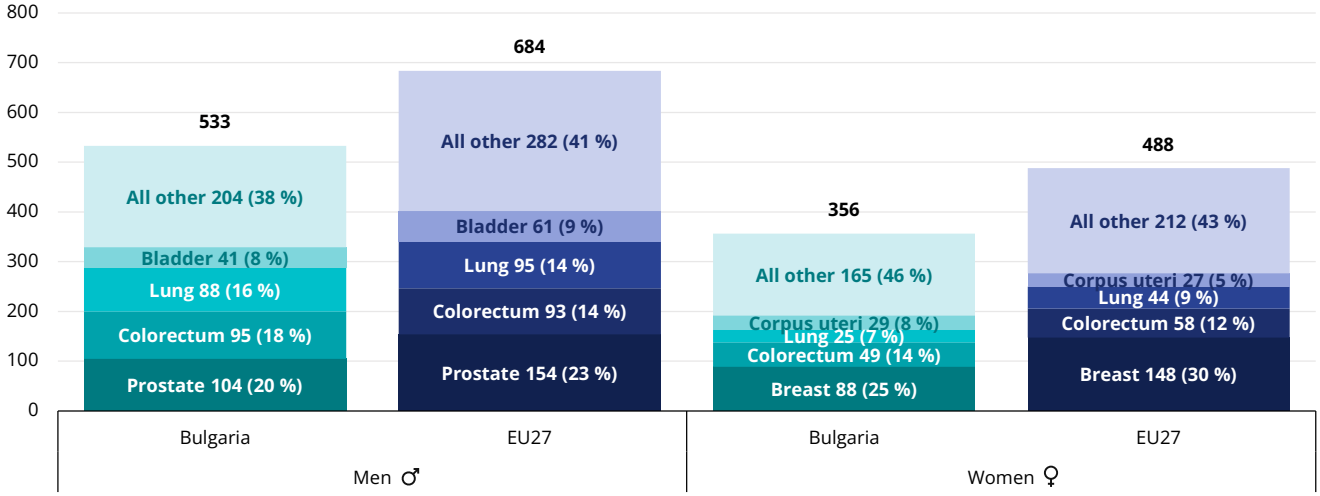
In 2022, the most frequently diagnosed new cancer among Bulgarian men was prostate cancer, with an age-standardised incidence rate of 104 new cases per 100 000 (compared to 154 per 100 000 across the EU). This was followed by colorectal cancer, at 95 new cases per 100 000 (compared to 93 per 100 000 across the EU), and lung cancer,[1] at 88 new cases per 100 000 (compared to 95 per 100 000 across the EU).

The most common cancer diagnosis among Bulgarian women was breast cancer, at an age-standardised incidence rate of 88 new cases per 100 000 in 2022 (compared to 148 per 100 000 across the EU). The second most common was colorectal cancer, at 49 new cases per 100 000 in 2022 (compared to 58 per 100 000 across the EU), followed by endometrial cancer (corpus uteri) at 29 new cases per 100 000 (compared to 27 per 100 000 across the EU) and lung cancer, at 25 new cases per 100 000 (compared to 44 per 100 000 across the EU).

Colorectal and lung cancers were responsible for a higher proportion of newly diagnosed cancer cases among Bulgarian men than their EU counterparts. Colorectal and corpus uteri cancers were responsible for a higher proportion of new cases among Bulgarian women than their EU counterparts (Figure 1).

Figure 1. Cancer incidence rates are well below the EU averages, for both men and women

Age-standardised incidence rate per 100 000 population, estimates, 2022



Notes: 2022 figures are estimates based on incidence trends from previous years, and may differ from observed rates in more recent years. Includes all cancer sites except non-melanoma skin cancer. Corpus uteri does not include cancer of the cervix.
Source: European Cancer Information System (ECIS). From https://ecis.jrc.ec.europa.eu, accessed on 10 March 2024. © European Union, 2024. The incidence percentage breakdown was re-computed based on age-standardised incidence rates and as such differs from the percentage breakdown of absolute numbers shown on the ECIS website.

While prostate, colorectal and lung cancers were the most common among Bulgarian men, and incidence for all cancer sites was lower than the EU average, several sites had higher incidence among

1 *Lung cancer also refers to trachea and bronchus cancers.*

Bulgarian men than the EU averages in 2022. These were stomach cancer, at an incidence rate of 28.6 per 100 000 Bulgarian men (compared to 21.2 per 100 000 across the EU), and brain cancer, at 13 per 100 000 Bulgarian men (compared to 11 per 100 000 across the EU).

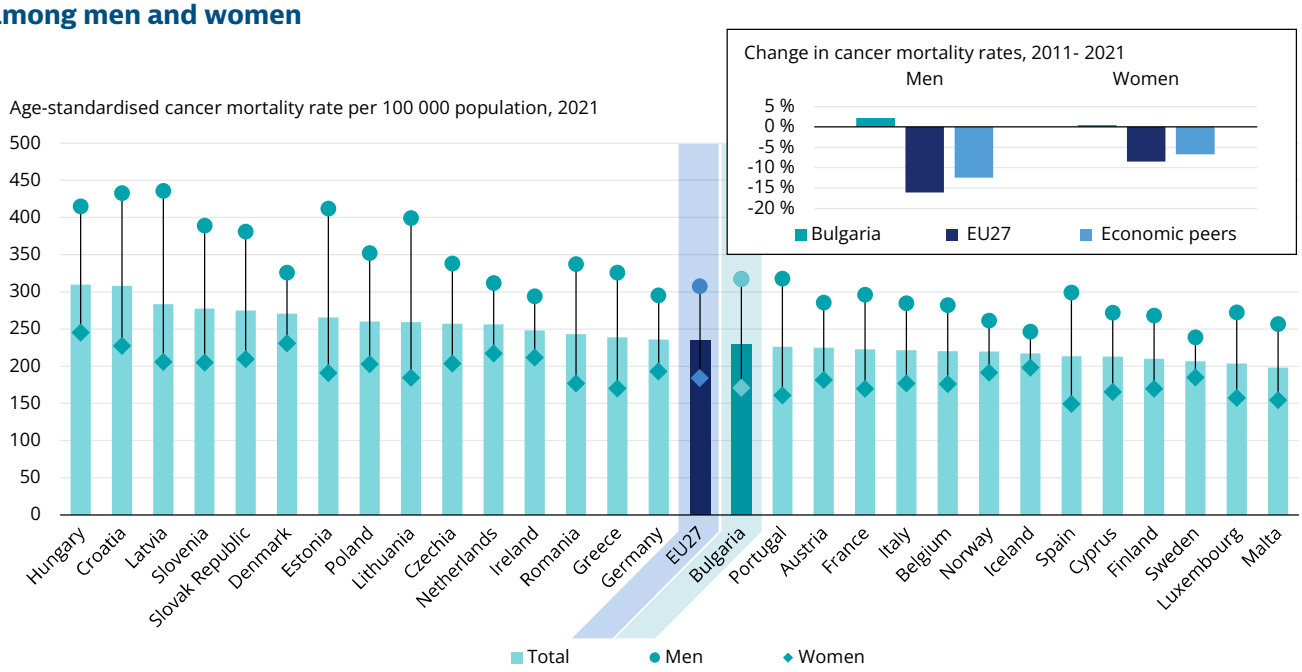
For women, the rates that exceeded the EU averages in 2022 were cervical cancer, at 23 per 100 000 in Bulgarian women (compared to 12 per 100 000 across the EU), stomach cancer, at 14 per 100 000 (compared to 11 per 100 000 across the EU), and brain tumours, at 9 per 100 000 (compared to 8 per 100 000 across the EU).

Bulgaria is one of only two EU countries where cancer mortality experienced an increase over the past decade

In Bulgaria, the age-standardised cancer mortality rate was 229 deaths per 100 000 population in 2021, which was below the EU average of 235 per 100 000. As in all other EU+2 countries,[2] Bulgarian men have significantly higher mortality rates than women (Figure 2). Cancer mortality rates among men in Bulgaria increased by 2% between 2011 and 2021, while they decreased by 12% among the country's economic peers[3] and by 16% among EU countries.

Mortality rates among Bulgarian women increased by 1% between 2011 and 2021, unlike the 7% reduction observed among the country's economic peers and the 9% reduction among EU countries. Bulgaria and Cyprus are the only EU countries where cancer mortality increased rather than decreased over 2011-21.

Figure 2. In contrast with other EU countries, Bulgaria saw an increase in cancer mortality rates among men and women



Notes: Economic peers are defined as tercile clusters based on 2022 GDP per capita in purchasing power standard terms. Economic peers for BG are EE, EL, HR, HU, LV, PL, PT, RO and SK.
Source: Eurostat Database.

Men have higher age-standardised mortality rates than women for all cancer sites except gall bladder and thyroid. The greatest differences between the two genders occur for pharynx and larynx cancers (which have rates 10 times higher among men) and lung cancer; this corresponds to the higher prevalence of smoking among men (see Section 3).

There is also evidence of significant regional inequalities in age-standardised cancer mortality during 2000-12 in Bulgaria. There was a more than three-fold difference between the regions with the highest and lowest age-adjusted mortality rates for breast and cervical cancer. The capital region of Sofia had the highest age-adjusted mortality for breast cancer, at 43 per 100 000 population,

2 *EU+2 countries include 27 EU Member States (EU27), plus Iceland and Norway.*

3 *Economic peers are defined as tercile clusters based on 2022 GDP per capita in purchasing power standard terms. Economic peers for BG are EE, EL, HR, HU, LV, PL, PT, RO and SK.*

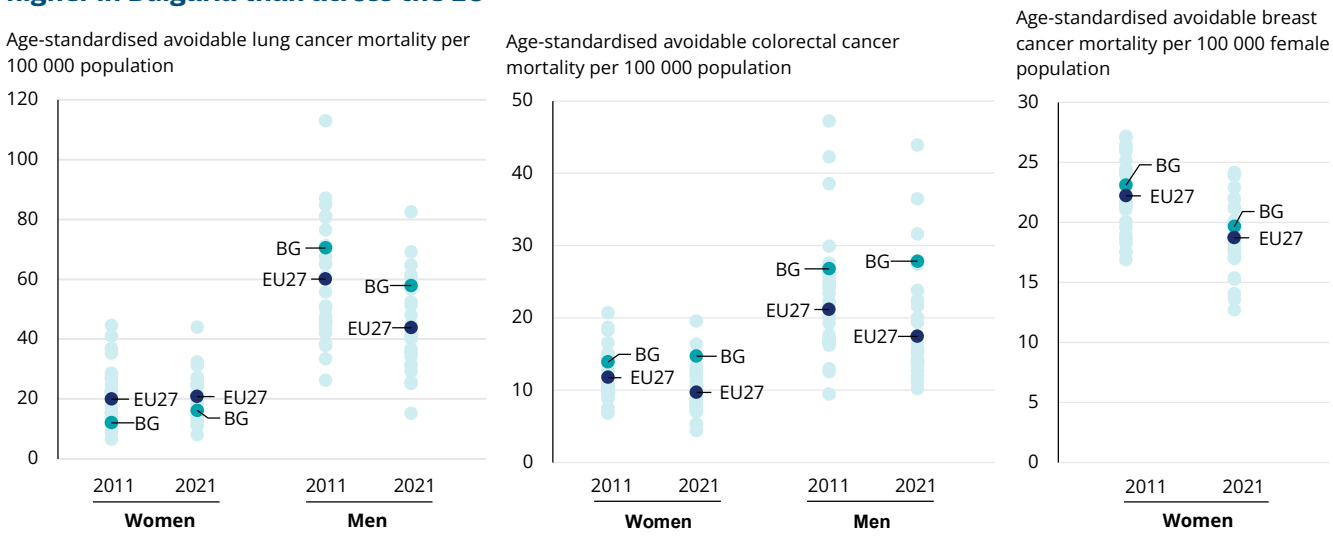
whereas the Kardzhali region had the lowest, at 13 per 100 000. The regional variation in age-standardised mortality was also significant (more than two-fold) for prostate and colon cancer. In the capital region of Sofia, the mortality rate for prostate cancer was 39 deaths per 100 000, while in the Silistra region, it was 15 per 100 000. This stark regional disparity highlights the inequality in cancer outcomes across regions of Bulgaria (Atanasova, 2016).

Avoidable cancer mortality is higher in Bulgaria than the EU average

Thanks to improved prevention strategies and advances in treatment options, a significant proportion of cancer deaths among people under 75 are considered potentially avoidable.[4] Avoidable mortality from three of the most common cancer sites – lung, breast and colorectum – is higher in Bulgaria than the EU average. Bulgarian men have higher avoidable mortality from lung (mostly preventable) and colorectal (mostly treatable) cancers than Bulgarian women and than their EU counterparts. Bulgarian women have higher avoidable mortality from breast cancer (mostly treatable) than the EU average (Figure 3).

The gap in avoidable mortality between Bulgaria and the EU increased between 2011 and 2021 – especially for colorectal and lung cancers among men. This rising disparity suggests that more effective primary prevention and public health interventions are needed to reduce cancer risk factors associated with lung cancer, such as tobacco smoking. In addition, more effective early detection and timely treatment for colorectal cancer are needed to close the gap with the EU (see Sections 4 and 5).

Figure 3. Avoidable mortality from lung cancer among men, and colorectal and breast cancers is higher in Bulgaria than across the EU



Note: Avoidable mortality figures relate to deaths of people aged under 75.
Source: Eurostat Database. Data refer to 2021.

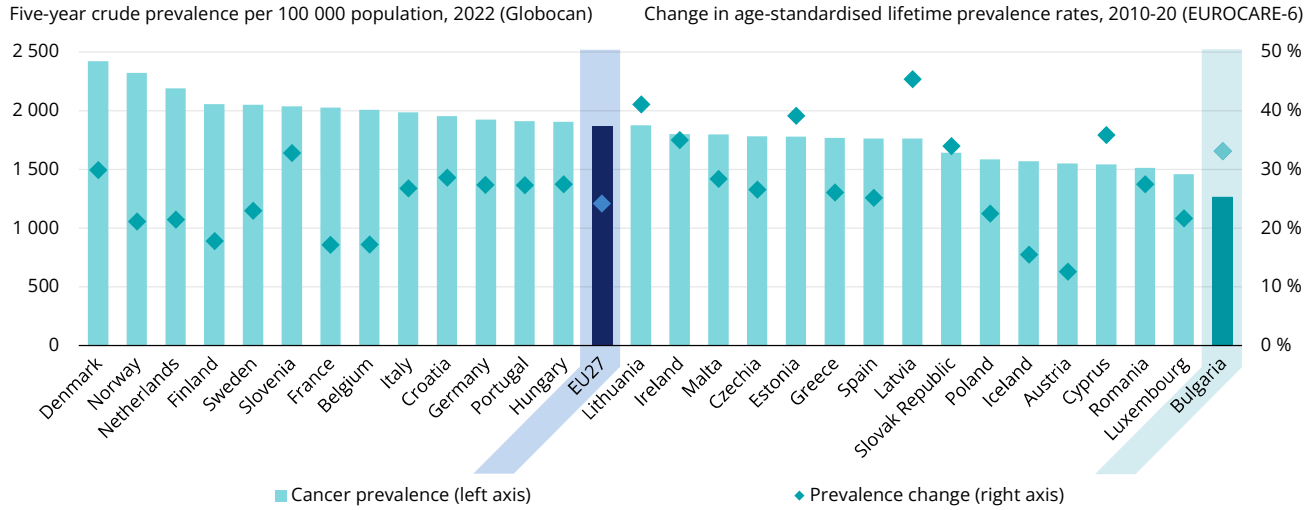
Cancer prevalence in Bulgaria is the lowest among EU+2 countries

According to Globocan estimates by the IARC, Bulgaria's five-year standardised cancer prevalence[5] rate in 2022 was the lowest among EU+2 countries, at 1 267 cases per 100 000 population (Figure 4) – 32% lower than the EU average. This is the result of low incidence rates and high mortality rates. The likely underestimation in cancer incidence is due to incomplete registration in the cancer registry since 2015, which in turn reduces prevalence estimates. However, cancer prevalence increased by 33% during 2010-20, which is among the largest prevalence changes in the EU. This rise highlights the growing importance of focusing on quality of life and survivorship (see Section 5.4), as people are living longer with cancer and more people have a history of the disease.

4 *Avoidable mortality includes both preventable deaths that can be avoided through effective public health and prevention interventions, and treatable deaths that can be avoided through timely and effective healthcare interventions.*

5 *Cancer prevalence refers to the proportion of the population who have been diagnosed with cancer and are still alive, including those currently undergoing treatment for cancer and those who have completed treatment. Five-year cancer prevalence includes people who have been diagnosed within the previous five years, while lifetime prevalence considers those who have ever received a cancer diagnosis.*

Figure 4. Bulgaria's five-year cancer prevalence rate is the lowest in the EU



Sources: IARC Globocan Database 2024; EUROCARE-6 study (De Angelis et al., 2024).

Bulgaria adopted its first National Cancer Plan in 2023

In 2023, Bulgaria adopted its first National Cancer Plan 2021-27 (Bulgarian Parliament, 2023a), which partly aligns with Europe's Beating Cancer Plan (Box 1). This strategic document outlines a vision for implementing multisectoral policies to address rising cancer incidence and mortality trends in the country. The Plan has seven key objectives, including prevention of modifiable cancer risk factors; introducing screening for colorectal, breast, cervical and prostate cancers; providing patients with advanced diagnostic options and equal access to diagnostic methods; and establishing comprehensive cancer centres and training leading specialists. Other objectives include improvement of cancer treatment through ensuring equal access to evidence-based therapies, developing multidisciplinary approaches and optimising quality of life for cancer patients, survivors and carers.

Box 1. Bulgaria's National Cancer Plan, adopted in 2023, aligns with priorities of Europe's Beating Cancer Plan

Bulgaria's National Cancer Plan focuses on combating specific risk factors that drive cancer burden (such as smoking, physical inactivity, excessive alcohol consumption, HPV infections, and lifestyle and environmental factors) and developing a cancer care system that offers sustainable and evidence based care, innovative diagnostics and treatments, and quality of life (Table 1). The National Cancer Plan also aims to improve outcomes for children with cancer, and prioritises oncology research, aiming to improve data collection and implement digital technologies to provide more clinically and economically efficient care. Eliminating cancer inequalities is not a key priority in Bulgaria.

Table 1. Bulgaria's National Cancer Plan mostly aligns with Europe's Beating Cancer Plan

Pillars of EBCP				Transversal themes of EBCP		
Prevention	Early Detection	Diagnosis and treatment	Quality of life	Cancer inequalities	Paediatric cancer	Research and innovation
●	●	●	●	●	●	●

Notes: EBCP = Europe's Beating Cancer Plan. Blue indicates that the National Cancer Plan includes a specific section on the topic; orange indicates that the topic is covered in one of the Plan's sections without being the only focus; and pink indicates that this topic is not covered in the Plan.
Source: Adapted from "Study on mapping and evaluating the implementation of Europe's Beating Cancer Plan" (not yet published).

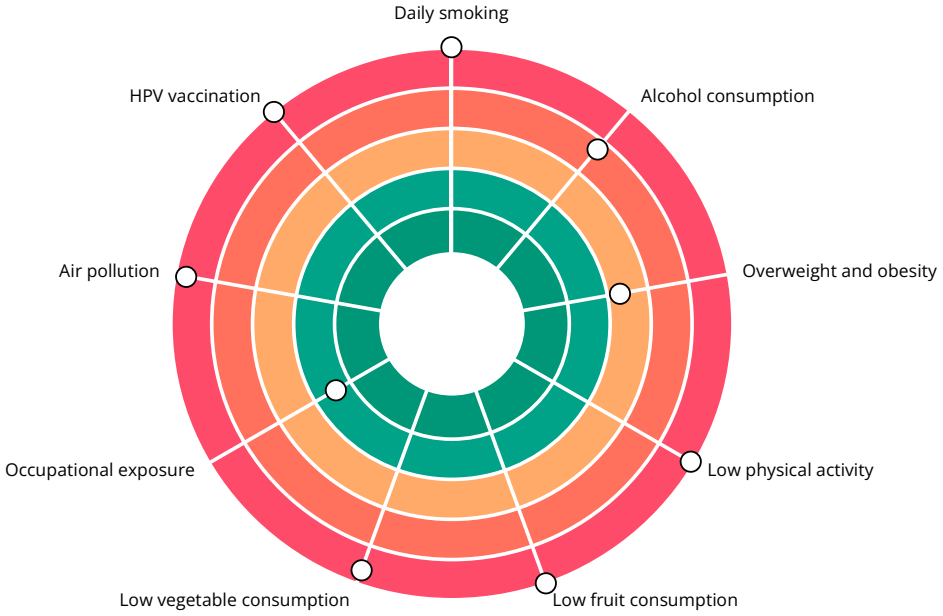
In April 2024, Bulgaria approved the National Health Strategy 2030, which prioritises targeted action strategies on specific public health issues, with fighting the burden of cancer ranking third among nine selected public health problems (Ministry of Health, 2024). However, neither the National Health Strategy nor the National Cancer Plan mention renewal of the Bulgarian Cancer Registry as an element of the planned priorities and actions. In 2023, the existing Registry was closed, and all data were transferred to the newly established National Health Information System (NHIS). As of September 2024, there is no clarity on how or when the functions of the Bulgarian Cancer Registry will continue. Without a proper functioning cancer registry covering the whole country it will be difficult to monitor the status quo, already apparent with the underestimated cancer incidence reported.

3. Risk factors and prevention policies

Most cancer risk factors are higher in Bulgaria compared to European countries

For seven of the nine cancer risk factors – smoking, alcohol consumption, vegetable and fruit consumption, physical activity, human papillomavirus (HPV) vaccination and air pollution – Bulgaria performed lowest among EU countries in 2022 (Figure 5). Mixed results for some existing preventive and health promotion policies, coupled with relatively limited resources for prevention, likely partially account for this. Bulgaria's spending on health prevention was 3% of total health expenditure in 2022, which is half the EU average of 6%[6].

Figure 5. Bulgaria performs worse than other EU countries on smoking, alcohol intake, air pollution, human papillomavirus vaccination, physical activity and dietary habits



Notes: The closer the dot is to the centre, the better the country performs compared to other EU countries. No country is in the white "target area" as there is room for progress in all countries in all areas. Air pollution is measured as particulate matter with a diameter less than 2.5 micrometres ($PM_{2.5}$).
Sources: OECD calculations based on 2022 EU-SILC Survey for overweight, obesity, physical activity, fruit and vegetable consumption (in adults); Eurofound Survey for occupational exposure; OECD Health Statistics for smoking, alcohol consumption (in adults) and air pollution; and WHO for HPV vaccination (15-year-old girls).

6 *Prevention expenditures as reported in health accounts should include activities outside of national programmes (e.g. opportunistic cancer screening or counselling for smoking cessation during a routine physician contact), however in practice countries may have difficulty in identifying prevention spending outside of such programmes.*

Smoking and alcohol consumption rates remain high in Bulgaria

According to the European Health Interview Survey, Bulgaria has the highest prevalence of cigarette smoking in the EU, at 29% in 2019. Unlike in most other EU countries, smoking rates are 50% higher among high-income (35%) than low-income (23%) population groups. There are also gender disparities in smoking rates: prevalence is almost twice as high among men (38%) than women (21%).

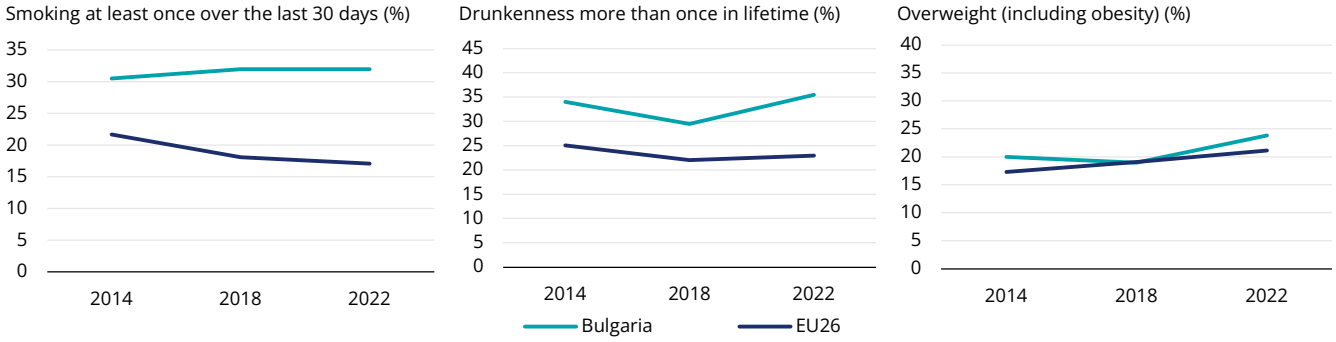
Alcohol consumption in Bulgaria is the third highest in the EU. In 2020, overall alcohol consumption per capita among adults was 11 litres – an increase from 10.4 litres in 2012. This is 12% higher than the average across the EU (10 litres in 2021). National estimates show that 66% of the Bulgarian population over the age of 20 consumes alcoholic beverages. The proportion of regular alcohol consumers is almost three times higher among men (41%) than women (15%), while the proportion of abstainers is twice as high among women (44%) than men (21%) (Strandzheva, Tsolova & Dimitrov, 2022a).

High levels of smoking, alcohol use and drunkenness among adolescents in Bulgaria are a cause for concern

Prevalence of smoking and drunkenness among 15-year-olds in Bulgaria showed a consistently high and increasing trend over 2014-22 compared to prevalence across the EU (Figure 6). Tobacco use among adolescents increased from 31% in 2014 to 32% in 2022, which was almost double the EU average of 17% in 2022. According to national estimates, one in six adolescents is a current smoker, with no significant gender difference in the rate (Teolova, Tzolova & Dimitrov, 2022). More than half of adolescents smoke intensively (over 6 cigarettes per day). Signs of severe addiction (cigarette lighting immediately after sleep) occur among 20% of boys and 27% of girls among the group of smokers. More than half of adolescent smokers (56%) have no intention of quitting.

Prevalence of more than one incident of drunkenness among adolescents in Bulgaria in 2022 (36%) was 56% higher than the EU (23%). This proportion increased slightly between 2014 and 2022, while fell across the EU over the same period. National estimates show that the average age at which children in Bulgaria first tried alcohol was 14 (Strandzheva, Tsolova & Dimitrov, 2022b). One in three children (34%) reported early alcohol consumption (before the age of 13).

Figure 6. Among 15-year-olds, Bulgaria fares worse than the EU averages for smoking, drunkenness and overweight



Notes: The EU average is unweighted. Data refer to 2022, and are based on children aged 15 years. EU26 for smoking and drunkenness; EU25 for overweight.
Source: Health Behaviour in School-aged Children Survey.

More than half of the adult population in Bulgaria are overweight or obese, but rates are declining

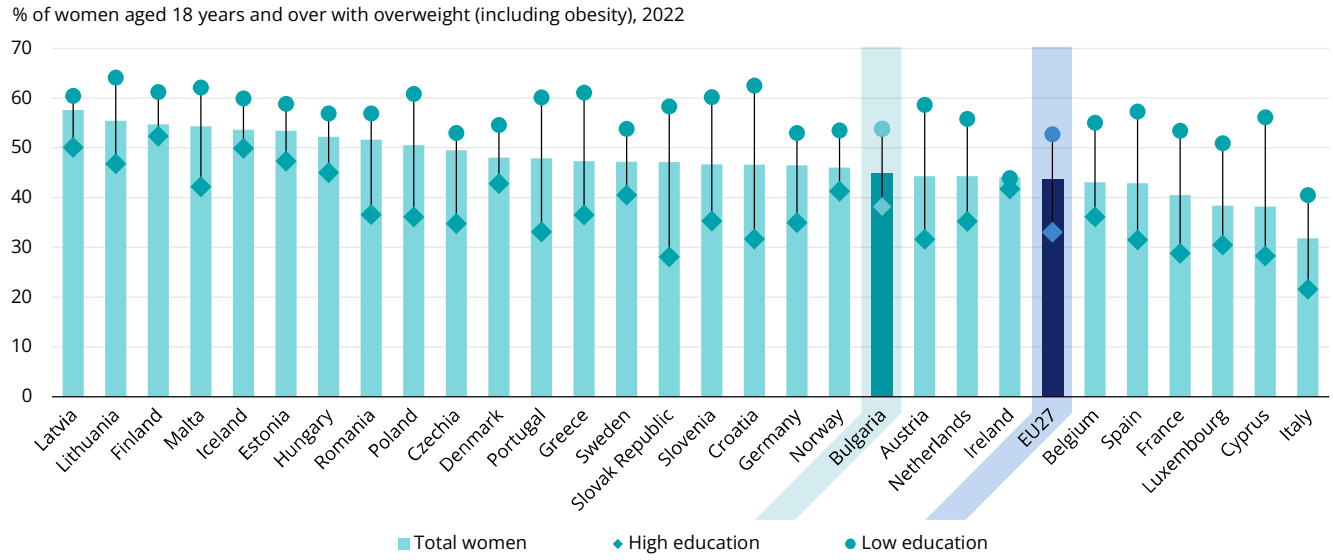
Between 2017 and 2022, the proportion of adults considered overweight or obese decreased from 59% to 54% in Bulgaria, while the EU average saw a slight decrease from 52% to 51%. In 2022, the overweight rate among Bulgarian men was 63%, which was higher than the EU average of 60%.

Among Bulgarian women, the overweight rate was 45% – close to the EU average of 44%. As in other EU countries, women with lower education levels in Bulgaria were more likely to be overweight – at 54% compared to 38% of their counterparts with higher education levels (Figure 7). Among 15-year-olds, prevalence of overweight and obesity increased from 20% in 2014 to 24% in 2022. This figure remains 3 percentage points higher than the EU average of 21%. Among adolescents, the share

of overweight was 41% among those in the bottom 20% of family affluence based on the Family Affluence Scale – significantly higher than the 18% among those in the top 20% of family affluence.

Poor nutrition and lack of physical activity contribute to overweight and obesity. In 2022, 66% of Bulgarian adults consumed fruits (compared to 39% in the EU) and 57% consumed vegetables (compared to 40% in the EU) less than once daily. In 2022, 11% of Bulgarians aged over 15 engaged in physical activity at least three times per week – well below the EU average (31%).

Figure 7. In Bulgaria, prevalence of overweight among women at all education levels is higher than the EU averages



Note: Overweight (including obesity) includes those with a body mass index (BMI) above 25.
Source: Eurostat Database.

Adolescents in Bulgaria have a healthier diet and exercise more than the EU average

Among 15-year-olds in Bulgaria, 33% consumed fruits daily (compared to 30% in the EU on average) and 40% consumed vegetables daily (compared to 34% in the EU). The share of 15-year-olds engaging in 60 minutes of physical activity daily is 18%, which is also higher than the EU average of 15%.

Human papillomavirus vaccination rates in Bulgaria are the lowest among EU countries, but recent efforts have been made to increase uptake

Bulgaria has the lowest HPV vaccination coverage among girls aged 15 in the EU. The proportion of girls who received all recommended doses of the HPV vaccine by age 15 in 2023 was 7% in Bulgaria, compared to 64% on average in the EU. The first National HPV vaccination programme started in 2012, funding free HPV vaccination on a voluntary basis for girls from the target group of girls aged 12-13. In 2013, the vaccination coverage was 24%. In the following years, the number of vaccinated girls drops sharply and in 2023 it is 2% for the target group of 10-13 year-old girls. Over time, the programme has been expanded; from 2021, the target group includes girls aged 10-13 (Ministry of Health, 2021). An updated national programme plans to include boys in the target group from 2025, following proposals to the Minister of health.

The programme uses both bivalent and tetravalent HPV vaccines, with addition of nonavalent in 2023. In 2023, a media promotion campaign was initiated in the community to raise awareness of the positive effects of HPV vaccination. These steps are part of Bulgaria's broader efforts to enhance preventive healthcare and reduce incidence of HPV-related cancers – particularly cervical cancer.

While exposure to air pollution remains high in Bulgaria, the country fares better on occupational exposure

The rate of exposure to air pollution in the form of $PM_{2.5}$ was 17 µg/m³ in 2020 – a drop of 26% since 2010. However, this was the second highest level in the EU after Poland. In 2021, 22% of people aged 15 and over reported exposure to chemical products and substances, which is well below the level in other EU countries including Poland (37%), Croatia (34%), Latvia (32%) and Lithuania (33%).

Bulgaria has implemented primary prevention programmes to address cancer risk factors

The National Programme for the Prevention of Chronic Non-Communicable Diseases 2021-25 details measures to decrease cancer risk factors. This includes development and implementation of new approaches to prevent childhood smoking, and support for smokers who wish to quit (with the aim of producing a 5% drop in smoking prevalence). Efforts include tailoring prevention programmes to primary school students and adapting interventions to address different smoking patterns among boys and girls. In addition, the programme aims to achieve a reduction in physical inactivity of 10%.

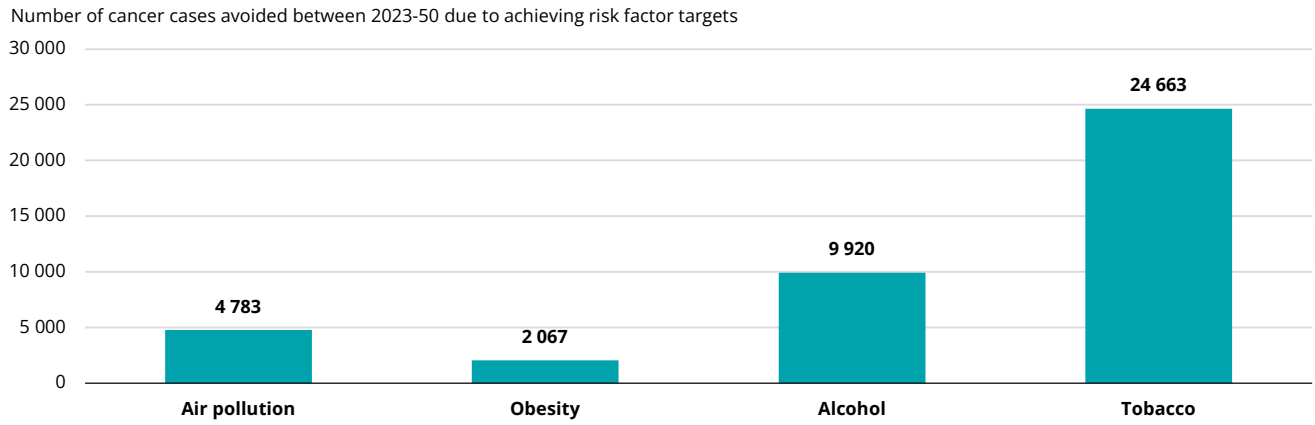
Bulgaria's policy on nutrient limits in food products received positive evaluation from the NOURISHING Framework of the World Cancer Research Fund International. However, gaps exist in regulations concerning availability of ultra-processed food near schools and sales of sugar-sweetened beverages in schools, which undermine otherwise effective standards on school food. Additionally, more efforts are needed in regulating food marketing and advertising, especially targeting children around schools.

Bulgaria introduced the 2024 National Strategy for the Development of Physical Activity, Physical Education, Sport and Sports Tourism to enhance physical activity – particularly among children and adolescents – through improved infrastructure and community initiatives (Bulgarian Parliament, 2023b). In order to guarantee the right of equal access to healthy physical activity and sports activities for all children, the Ministry of Youth and Sports annually finances the "Sports for children at risk" programme, through which it supports sports clubs to organise and conduct free sports activities for children at risk. Every year the Ministry of Youth and Sports finances the organisation of School Games for students from the 5th to the 12th grade and School Games for students with physical and mental disabilities. In 2024, a new pilot programme "Sports Hour" was launched to ensure participation in physical exercises, mobile games and sports activities for children from kindergartens, schoolchildren and students, to form and develop school and student sports teams. Around 92 000 students participated to the pilot programme.

Achieving risk factor reduction targets would lead to a reduction in new cancer cases between 2023 and 2050

Although people's risk of developing cancer is determined by a complex combination of factors, intensified efforts to decrease the prevalence of lifestyle-related risk factors have the potential to reduce cancer incidence in Bulgaria by thousands of new cases between 2023-50 (Figure 8). According to OECD Strategic Public Health Planning (SPHeP) modelling work, achieving tobacco targets could result in Bulgaria preventing 24 663 new cancer cases between 2023 and 2050. Meeting alcohol targets could reduce the cancer burden by 9 920 cases over the same period; an additional 4 783 cases could be prevented if air pollution targets were met, and 2067 cases if obesity targets were met.

Figure 8. Achieving tobacco reduction targets could prevent more than 24 000 new cancer cases over the period 2023-50



Notes: The target for tobacco is a 30% reduction in tobacco use between 2010 and 2025, and less than 5% of the population using tobacco by 2040. For alcohol, the target is a reduction of at least 20% in overall alcohol consumption and a 20% reduction in heavy drinking (six or more alcoholic drinks on a single occasion for adults) between 2010 and 2030. For air pollution, it is an annual average $PM_{2.5}$ level capped at 10 µg/m³ by 2030 and at 5 µg/m³ by 2050. For obesity, the target is a reduction to the 2010 obesity level by 2025.
Source: OECD (2024b), Tackling the Impact of Cancer on Health, the Economy and Society, https://doi.org/10.1787/85e7c3ba-en.

4. Early detection

The National Cancer Plan, adopted by the Bulgarian Parliament in 2023, targets early detection with screening programmes for colorectal, breast, cervical and prostate cancers through to 2027 (Bulgarian Parliament, 2023a). However, it does not mention population-based screening, and seems not aligned with the updated Council recommendation on cancer screening of 2022.

Cancer screening programmes were historically opportunistic in Bulgaria

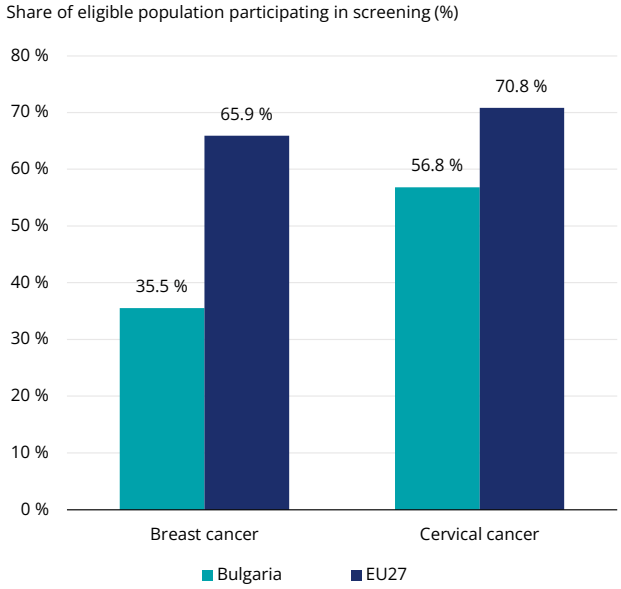
In 1998, with the enactment of the Health Insurance Act, a system of universal compulsory health insurance was introduced in Bulgaria. The National Health Insurance Fund (NHIF) was established, and became responsible for funding cancer early diagnosis and supporting general practitioners (GPs) in their health promotion, prevention and early diagnosis services – including cancer.

In 2003, Bulgaria introduced annual preventive health check-ups for all citizens aged 18 and over – covered by the NHIF within the National Framework Contract, which detailed the services included in the basic health insurance package. Initially, these check-ups only involved breast palpation for early detection of breast cancer, from 2003 to 2006. Enhancements came in 2006 with the inclusion of gynaecological exams with cytology for women aged 30-40 every 2 years. In 2011, the scope was broadened further to incorporate mammography for women aged 50-69.

The preventive measures facilitated by GPs during mandatory annual health checkups promote and orientate patients towards cancer screening services, rather than conducting systematic population-based screening. There is no formal invitation process for the insured population; individuals must initiate their preventive check-ups themselves. GPs direct patients to the appropriate screening tests based on their age and gender. Patients have the flexibility to choose their testing location, and results are sent from the laboratory to the GP, who co-ordinates any necessary follow-up care. Patients can access their results directly from the laboratory and consult their GP for further information or clarification.

The fact that cancer screening has historically been opportunistic rather than population-based in Bulgaria explains the low participation rates for major cancer sites. In 2019, the breast cancer screening rate among women aged 50-69 was 36% (Figure 9), which is one of the lowest rates across EU+2 countries and below the EU average of 66% in the same year. However, the participation rate had increased by 62% over time, from a screening participation rate of 22% in 2008.

Figure 9. Bulgaria has lower breast cancer screening rates than the EU average



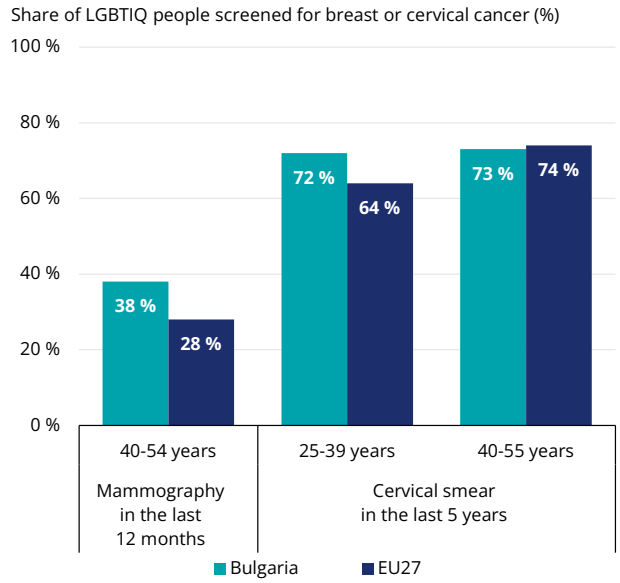
Notes: Data refer to mammography screening among women aged 50-69 within the past two years, and cervical cancer screening among women aged 20-69 within the past three years. Data for Bulgaria and the EU comes from 2019 survey data.
Source: Eurostat database

Cervical cancer screening coverage among women aged 20-69 was 57% in 2019 (lower than the EU average of 71% in the same year), but it had increased by 21% since 2008, when coverage was 47%. Colorectal cancer screening rates among the population aged 50-74 were the second lowest among EU+2 countries in 2019 (at 4%). The need for a wide-scale colorectal cancer screening programme is well recognised in Bulgaria, and in 2024 a privately sponsored colorectal cancer screening campaign was initiated, supported by the Ministry of Health.

LGBTIQ persons participate more in breast cancer screening than in the EU

According to the EU LGBTIQ Survey III, participation in cancer screening among LGBTIQ persons is higher in Bulgaria than in other EU countries. For breast cancer screening, 38% of LGBTIQ cisgender females, trans women and intersex people aged 40-54 years reported having had a mammogram in the previous 12 months, one-third higher than the EU average of 28% (Figure 10). For cervical cancer screening, 72% of the relevant LGBTIQ population aged 25-39 in Bulgaria reported having had a smear test in the previous 5 years (higher than the 64% in the EU), while 73% of those aged 40-55 in Bulgaria reported a smear test (similar to the EU average).

Figure 10. LGBTIQ persons in Bulgaria participate more in breast cancer screening than their EU counterparts



Note: LGBTIQ survey results refer to age groups and/or screening intervals that do not align with the population screening approach in EU countries, and should not be compared.
Source: The European Union Agency for Fundamental Rights (EU LGBTIQ Survey III).

The National Cancer Plan targets early detection, but does not align with updated EU screening recommendations

The most recent modifications to the cancer preventive exams under the NHIF in Bulgaria were made in 2023, but they do not align with the new Council recommendation on cancer screening of 2022. Breast cancer screening includes an ultrasound exam every two years for women aged 30-50, and a mammogram every two years for those aged 50-69. In contrast, the EU recommends mammography for women aged 45-74, using either digital mammography or digital breast tomosynthesis and magnetic resonance imaging (MRI).

Cervical cancer screening in Bulgaria involves a pap smear test for women aged 30-40, while the EU recommends testing women aged 30-65 for HPV every five years or more, adjusting the ages and intervals based on individual risk factors and HPV vaccination history.

The EU recommends quantitative faecal immunochemical testing as the preferred colorectal cancer screening method, but this has not been adopted in Bulgaria. Instead, examination for occult haemorrhages is performed once every 2 years on preventive examinations and dispensation. If deemed necessary, additional diagnostic procedures are performed, which may include fibro colonoscopy. Additionally, for individuals over 18 with a family history of colon or rectal cancer, examination for occult haemorrhage is carried out which may also include a colonoscopy.

Prostate cancer screening in Bulgaria includes a prostate-specific antigen (total PSA and free PSA) test every two years for men aged over 50, which does not align with the EU recommendation of testing men aged up to 70.

These preventive exams for breast, cervical, colorectal and prostate cancers are funded by the NHIF for all fully insured citizens who meet the specified criteria. Those who are not insured can opt to pay for these exams at clinical or imaging laboratories. The test results are entered into the recently developed electronic health records; this provides patients with the opportunity to discuss the results with their GP, and increases opportunities for care quality monitoring.

Despite the focus of the National Cancer Plan on screening, it does not mention introduction of any population-based screening programmes, which means that no invitations are sent to specific at-risk populations. Instead, annual primary care preventive examinations are mandatory and the patient is obliged to see their general practitioner who informs them about the recommended means of conducting a cancer screening test. Populations facing barriers to access care, who are already at a disadvantage – such as uninsured people, those living in remote locations and those with low socio-economic status – are less likely to get tested, deepening existing inequalities.

5. Cancer care performance

5.1 Accessibility

Out-of-pocket payments for cancer services pose a challenge to equitable access to care in Bulgaria

The Bulgarian healthcare system relies heavily on out-of-pocket payments (OOPs) for health services, posing threats to equitable access to care and to the principle of universal health coverage (Dimova & García-Ramírez, 2002). In 2018, around 20% of Bulgarian households incurred OOPs that exceeded their capacity to pay for healthcare by at least 40% (catastrophic spending) – a very high rate compared to other European countries. Bulgaria has made progress in reducing OOPs: the rate dropped from 43% of health spending in 2016 to 34% in 2021, but remained significantly above the EU average of 14.5% in 2021. OOPs for medicines are the main driver of catastrophic health spending in Bulgaria. They disproportionately affect poorer households, older people and people living in rural areas, and this impact has increased over time.

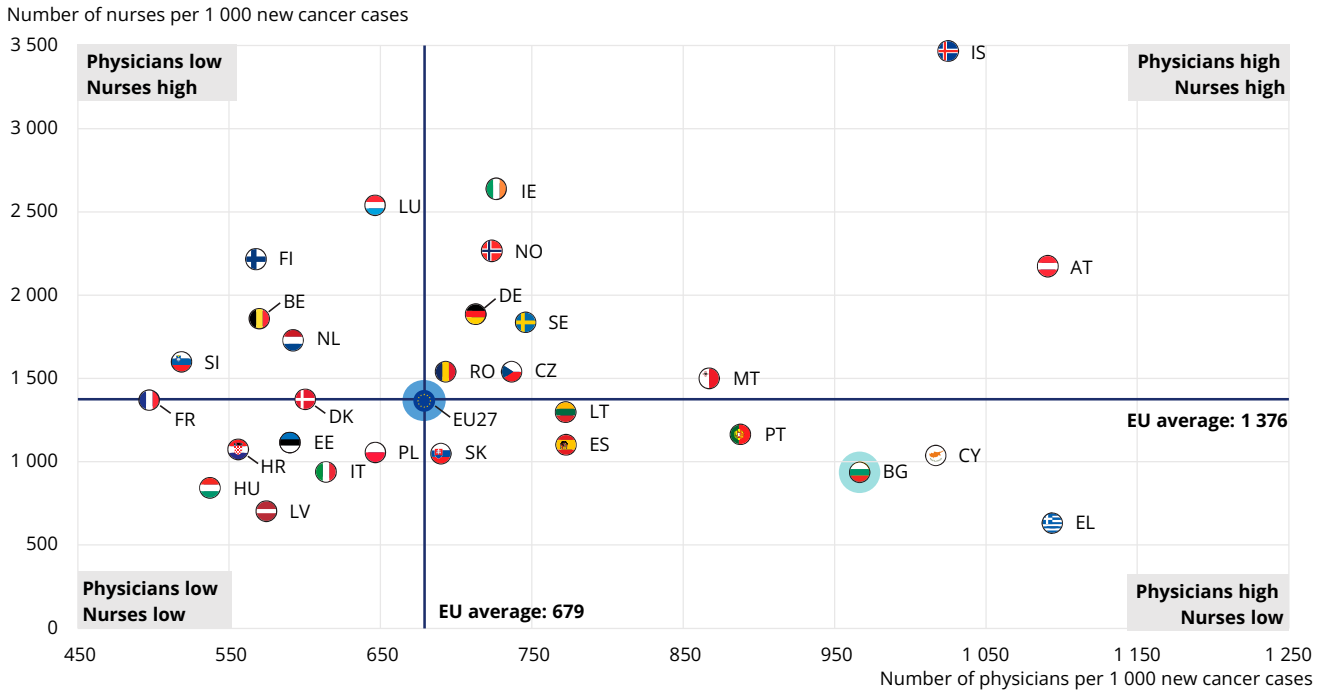
While cancer medicines are covered by the NHIF, about 69% of cancer patients still have to pay OOPs related to their treatment. According to a survey conducted by the Hospital Index Initiative in 2024, the average copayment for cancer treatment amounts to BGN 1 465 (EUR 733). For 26% of cancer patients, the copayment limit access to healthcare services. Among those who paid out of pocket, 56% paid for surgery at an average cost of BGN 1 732 (EUR 870). Some 41% paid an average of BGN 455 (EUR 230) for tests, while 25% had OOPs related to medical treatment at an average cost of BGN 651 (EUR 325). Radiation therapy incurred an average cost of BGN 365 (EUR 183) for 13% of the respondents. During treatment, 55% of respondents made additional copayments, at an average of BGN 897 (EUR 450) for specialised nutritional supplements, medical devices or aesthetic interventions. OOPs are also required for diagnostic activities related to tumour markers, immunohistochemistry, various genetic tests of the tumour and specific surgical treatments not approved by the Ministry of Health standards (Hospital Index, 2024a).

In addition, the healthcare system in Bulgaria operates with quarterly quotas: GPs and outpatient specialists are allocated a certain number of referrals they can issue each quarter. These are set by the NHIF, and are based on historical data and current healthcare demands. The quotas are intended to control the number of patients referred to secondary care within a given timeframe. It is unclear how this system effects the quality of care for increasing numbers of cancer patients.

Bulgaria has a low density of nurses, but a higher density of doctors than other EU countries

Availability of health workers is a key determinant of access to cancer care. Bulgaria's density of physicians is 42% above the EU average, at 967 physicians per 1 000 new cancer cases (compared to 679 per 1 000 across the EU), but the density of nurses is 31% below the EU average, at 943 nurses per 1 000 cancer cases (compared to 1 376 per 1 000 across the EU) (Figure 11).

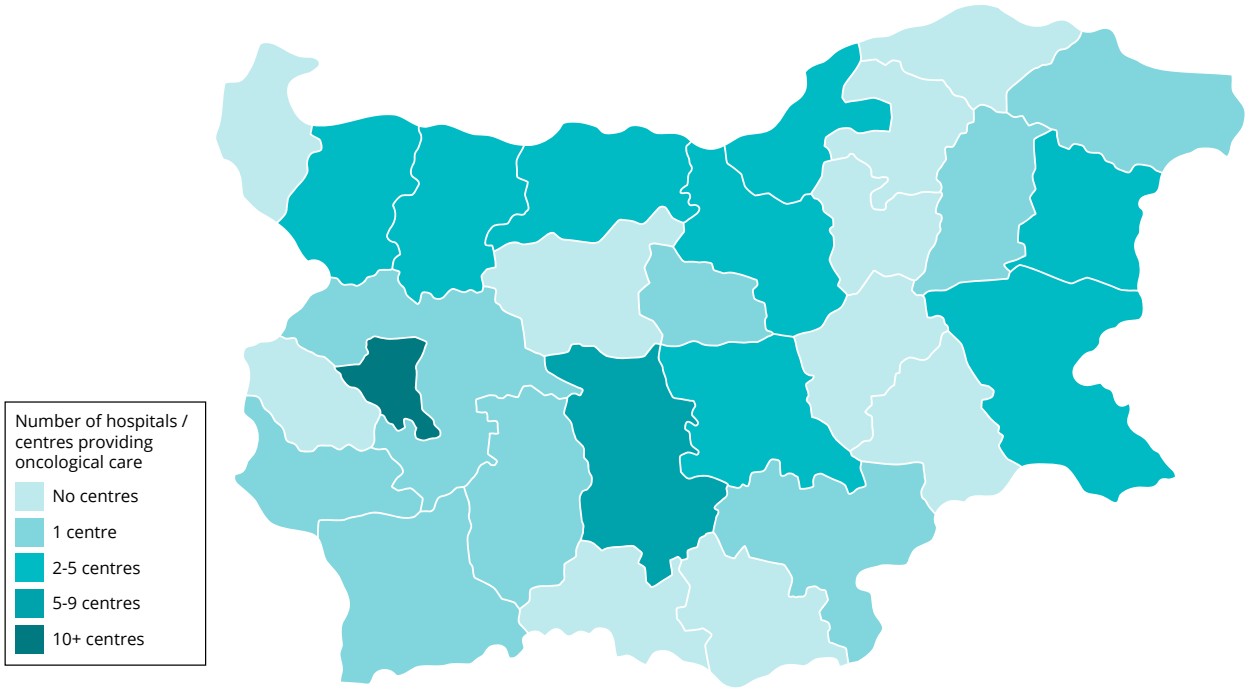
Figure 11. Bulgaria is among the countries with the lowest numbers of nurses per 1 000 new cancer cases



Notes: The data on nurses include all categories of nurses (not only those meeting the EU Directive on the Recognition of Professional Qualifications). Data refer to practising nurses except in Portugal and the Slovak Republic, where they refer to professionally active nurses. In Greece, the number of nurses is underestimated as it only includes those working in hospitals. In Portugal and Greece, data refer to all doctors licensed to practise, resulting in a large overestimation of the number of practising doctors. The EU average is unweighted.
Source: OECD Health Statistics 2024. Data refer to 2022 or latest available year.

While the total number of physicians in Bulgaria seems high, numbers of specialists crucial to cancer care – such as GPs and particularly medical oncologists – are insufficient. Medical oncology has been recognised as a distinct medical specialty in Bulgaria for the past decade. According to the Bulgarian Medical Association register of specialists, there were about 3.3 medical oncologists per 100 000 population in 2023. Bulgaria has the fourth lowest number of GPs, at 0.6 per 1 000 population (compared to the EU average of 0.8 per 1 000). Shortages of radiation therapists and radiologists have also been reported. The problem is further exacerbated by the concentration of specialists, specialised hospitals and oncological centres in the capital (where 18 of the 52 are located) and the major cities (Figure 12).

Figure 12. Medical care institutions providing oncological treatment are unevenly distributed across Bulgaria



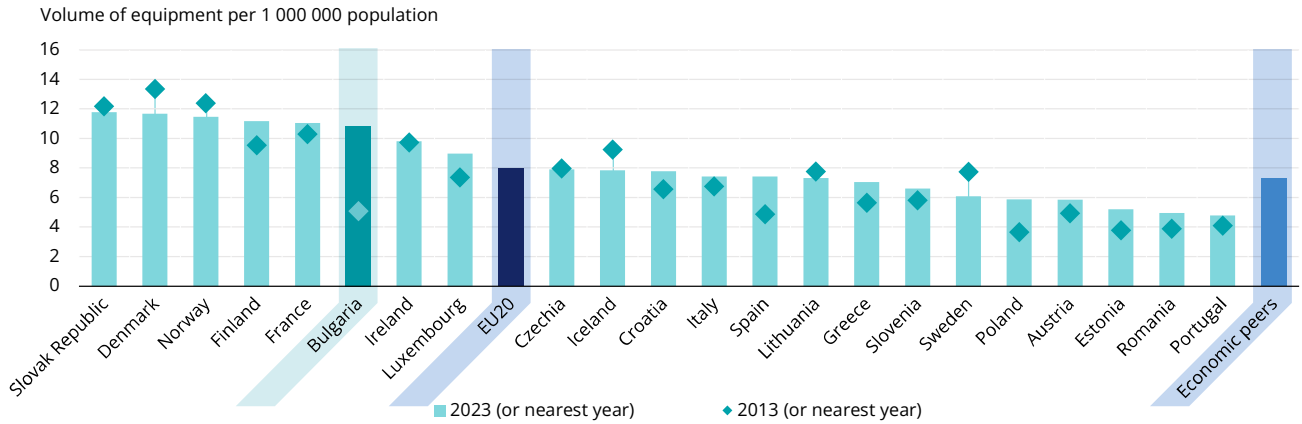
Source: Data for 2023 from the NHIF.

According to the European Oncology Nursing Society Cancer Nursing Index 2022 (EONS, 2024), it has been possible for nurses in Bulgaria to achieve an oncology specialisation for more than a decade. Leading universities providing education for nurses offer this specialisation with a standardised, nationally approved programme. However, there are no nurses specialising in oncology care outside the capital.

Availability of radiotherapy equipment is improving in Bulgaria

The growing number of cancer cases in Bulgaria necessitate adequate availability of medical equipment. All EU countries have made investments in this direction, and provision of radiotherapy equipment per 1 000 000 population increased in most EU countries over the last 10 years. The most notable increase was observed in Bulgaria, where the volume of radiation therapy equipment more than doubled between 2012 and 2022. As a result, in 2022, Bulgaria ranked among the countries with the highest supply of radiotherapy equipment among EU countries after the Slovak Republic, Denmark, Finland and France (Figure 13).

Figure 13. Bulgaria is among the countries with the highest volumes of radiation therapy equipment



Notes: The vast majority of radiotherapy equipment in EU countries is found in hospitals. Data for Portugal and France includes equipment in hospitals only while data for other countries refer to all equipment. Economic peers are defined as tercile clusters based on 2022 GDP per capita in purchasing power standard terms. Economic peers for BG are EE, EL, HR, PL, PT, RO and SK. The EU average is unweighted.
Source: OECD Health Statistics 2024.

Availability of diagnostic therapeutic equipment, such as computed tomography (CT) scanners and MRI units, has also increased in Bulgaria over the last 10 years. More than 47 CT scanners per 1 000 000 population were reported in 2022 (compared to 26 per 1 000 000 in the EU), but the number of MRI units was comparatively low, at 12 per 1 000 000 population in 2021 (compared to 18 per 1 000 000 across the EU).

In 2023, there were 21 particle therapy centres, 40 megavoltage, 9 kilovoltage and 12 brachytherapy equipment in Bulgaria, and 50% of particle equipment was less than 10 years old. More than 40 hospitals and medical centres provide some level of cancer care, although there is a wide variation in their service capacity (NHIF, 2024). Of the medical institutions providing medical oncology services, almost 40% are based in the capital city, Sofia.

There has been a marked increase in approved and reimbursed cancer medications in Bulgaria

Access to adequate cancer medicines is a cornerstone of both curative and palliative cancer care. Bulgaria has benefited significantly from EU and international trends that have seen a marked increase in the number of approved cancer medicines and extensions of existing cancer medicines to new indications (i.e. new patient groups). While in the first decade of the 21st century the annual number of newly approved cancer medicines in Bulgaria was around 4, by 2021, 17 new medicines had been approved, followed by 15 more in 2022.

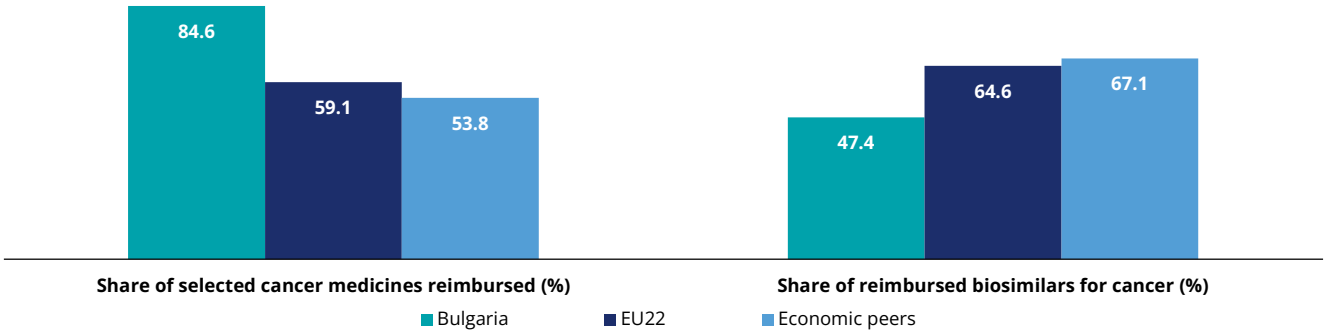
An OECD analysis of selected indications of newer cancer medicines with public reimbursement in 2023 suggests that Bulgaria is among the countries with the highest share of publicly reimbursed treatments (at 85%) (Figure 14), compared to an average of 59% across the EU and 54% among the country's economic peers.

However, the inclusion of a medicine/indication in a positive reimbursement list does not automatically ensure that all eligible patients have access to it in clinical practice. Bulgaria, for instance, had the lowest usage rate of immunotherapies, despite their availability in 2018. Five years later, in 2023, use of immunotherapy in Bulgaria had increased, supported by rising expenditure for targeted and immunotherapy treatments. Specifically, there was a five-fold increase in expenditure on lung cancer treatments, and a nearly two-fold increase on melanoma and prostate cancer treatments (Encheva-Malinova et al., 2022).

A recent study examining the current state and time to access of medicines for advanced breast cancer approved and reimbursed in Bulgaria concluded that treatment follows the most up-to-date recommendations. However, the time to access is 1-2 years after marketing authorisation in the EU, mainly due to national requirements for pricing and reimbursement, as well as the policy and market access strategies of pharmaceutical companies at the national level (Karanyotova et al., 2023).

Patent expirations in oncology are expected to alleviate the financial pressure on the healthcare system. The proportion of biosimilars reimbursed is an indicator of a country's policy to contain costs through such measures. In Bulgaria, 47% of available biosimilar drugs are reimbursed, which is lower than the averages across the EU (65%) among the country's economic peers (67%).

Figure 14. Bulgaria outperforms most EU countries in reimbursement of oncology medicines



Notes: The analysis includes a sample of 13 indications of 10 new cancer medicines for breast and lung cancer with a high clinical benefit and 19 biosimilars of three cancer medicines (bevacizumab, rituximab, trastuzumab), with active marketing authorisation by the European Medicines Agency as of 26 March 2023. The data represent the share of the indications or biosimilars that were on the public reimbursement list on 1 April 2023. Economic peers are defined as tercile clusters based on 2022 GDP per capita in purchasing power standard terms. Economic peers for BG are EE, EL, HR, HU, LV, PL and PT. The EU average is unweighted.
Source: Hofmarcher, Berchet and Dedet (2024), "Access to oncology medicines in EU and OECD countries", https://doi.org/10.1787/c263c014-en.

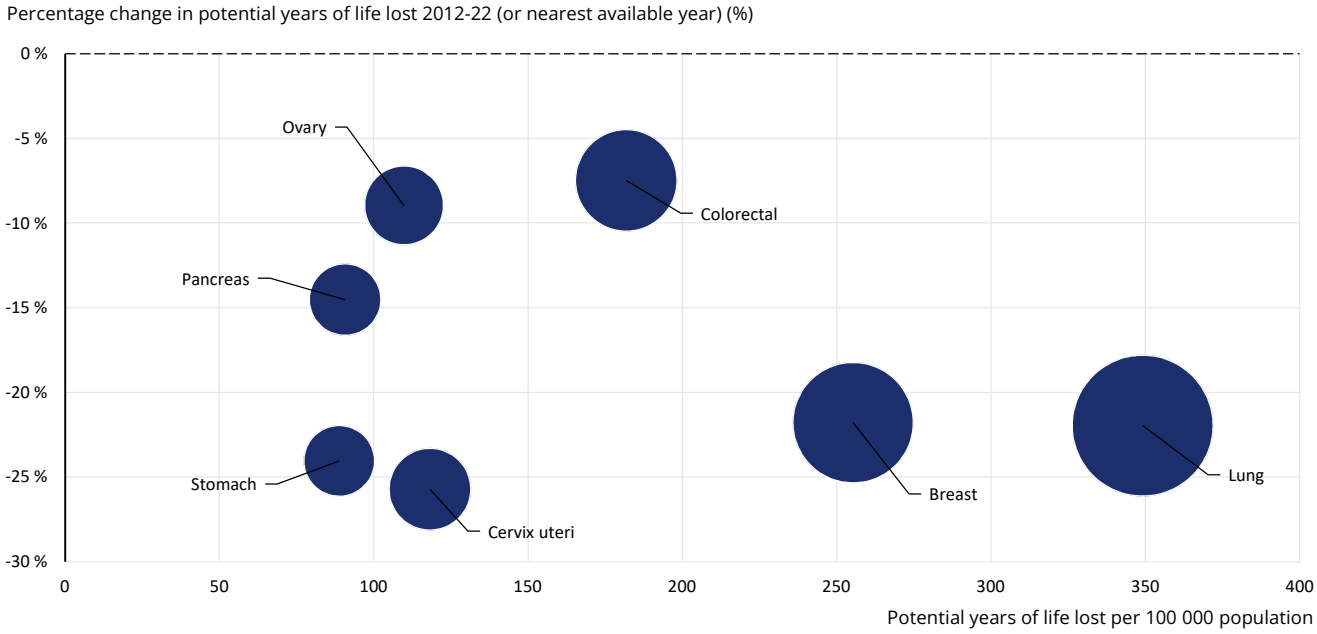
5.2 Quality

Cancer causes substantial preventable premature life loss in Bulgaria

Potential years of life lost (PYLL) is an interesting complementary measure of the impact of different cancers on society, because it puts a higher weight on cancer deaths among younger individuals. Examining the change in PYLL over time across various cancer sites can point to improvements in cancer care systems via reductions in premature mortality. In 2021, the overall potential years of life lost due to cancer across all sites in Bulgaria was 1 695 per 100 000 population, among the highest in the EU, and 25% higher than the EU average of 1 355 per 100 000.

During 2012-21, the PYLL rate in Bulgaria decreased by 16%, compared to a 19% decrease across the EU. In 2021, the cancer responsible for the most PYLL was lung with 349 years per 100 000 population, which showed a 22% decrease from 2012 (Figure 15).

Figure 15. Lung cancer caused the largest number of potential years of life lost per 100 000 population



Notes: The rate of PYLL from breast, cervical and ovarian cancer is calculated in women only, while the rate of PYLL from prostate cancer refers to men. Pink bubbles signal an increase in the percentage change in PYLL during 2012-22 (or latest available year); blue bubbles signal a decrease. The size of the bubbles is proportional to the PYLL rates in 2022.
Source: OECD Health Statistics 2024.

Quality assurance regulations have been adopted in Bulgaria

The quality of cancer care in Bulgaria is regulated using existing medical standards for the specialties medical oncology (last updated in May 2023), paediatric clinical haematology and oncology (last updated in July 2021) and radiation therapy (updated between 2021 and 2023). Additionally, pharmaco-therapeutic guidelines are in place for medical oncology, paediatric clinical haematology and oncology.

The medical standard for medical oncology regulates several key aspects related to the organisation of a medical oncology specialty, including its definition and scope, basic competence requirements, and standards for organisation and equipment of facilities providing cancer treatment. It also includes quality requirements for activities in medical oncology (for both outpatient and inpatient services), guidelines for organising work processes for patient referrals, registration, diagnosis, treatment and follow-up, and maintenance of a national cancer registry.

The overarching objective of the medical standards is to ensure provision of high-quality early assessment and treatment of oncological diseases, adequate specific drug therapy and continuous follow-up of patients with malignant solid tumours. Implementation of comprehensive specialised diagnostic and treatment activities in hospitals and complex oncology centres, and provision of a multidisciplinary approach in the diagnosis, treatment and follow-up of patients with malignant solid tumours are key levers to ensure high quality of cancer care.

The Comprehensive Cancer Centre in Vratsa is a designated Centre of Integrated Oncology and Palliative Care

Bulgaria has cancer centres that play a crucial role in the diagnosis, treatment and follow-up care of cancer patients. The patients have the right to a treatment centre of their choice throughout the country. One notable example is the Comprehensive Cancer Centre in Vratsa, which was formerly the Inter-regional Cancer Dispensary in Vratsa, founded in 1951. This Centre provides comprehensive oncology services, including diagnostics, cancer treatment and post-treatment follow-up for adult cancer patients with solid tumours. It serves the northwest area of Bulgaria, covering around 450 000 people. It has a multidisciplinary approach, involving specialists from various fields such as oncology, radiology, surgery and pathology to develop and implement patient-centred treatment plans. The European Society for Medical Oncology designated it a Centre of Integrated Oncology and Palliative Care.

Approval procedures are in place to assure the quality of oncological care

In addition to medical standards, there is an approval procedure for hospitals and complex oncological centres in Bulgaria, aiming to ensure health service quality assurance and assessment of capacity for education of students and postgraduate specialisations. Following the 2019 "Ordinance No. 8 on the requirements for medical institutions that train students and specialists", approval is subject to the criteria and conditions to which the structure and organisation of the activity in the medical institution, the necessary equipment and the qualification of the staff must be met, so that it can educate students and specialists. An Advisory Council at the Ministry of Health issues the approval order to allow medical facilities to carry out educational training.

The Bulgarian Cancer Registry has ceased functioning, but a National Health Information System has been established

Availability of valid, reliable and timely data on the progression of disease relies on the functioning of a cancer registry. In 2023, the Bulgarian Government initiated a radical reorganisation of the Bulgarian National Cancer Registry, which had been functioning and providing internationally comparable information since 1952.

The responsibilities and tasks of maintaining the Bulgarian Cancer Registry were transferred from the University Specialised Hospital for Active Treatment of Oncological Diseases "Ivan Chernozemski" to the National Centre of Public Health and Analysis and the newly established National Health Information System (effective from 6 November 2023). As a result, the Bulgarian Cancer Registry underwent a transformation, which was expected to lead to its digitalisation and increased capacity to collect detailed information for each cancer case. However, as of July 2024, there was no clarity on when this process will be completed. The objective is to continue development of the National Health Information System, which will extract, combine and store individual-level data from a newly established network of comprehensive cancer centres.

The NHIS is expected to include an oncology module with a package of individual-level data on the patient, their cancer diagnosis, treatment and treatment outcomes. It also aims to ensure the validation of existing records and the inclusion of new registrations, preventing the loss of current information while providing new entries. However, there is no plan for cancer-related information to be linked to the individual's socio-economic status, meaning that opportunities to monitor some cancer inequities will be lost.

There is a lack of information on cancer survival in Bulgaria

Due to the organisational and technical developments regarding the Bulgarian National Cancer Registry in 2023, no updated and internationally comparable information is available on the survival rates of cancer patients in the country for this year.

Patient-reported experiences and outcomes of cancer care are not routinely monitored in Bulgaria

For cancer services to be patient-centred, it is essential to collect patients' evaluations of accessible cancer services and their subjective experiences, and to assess care outcomes objectively. Some private hospitals in Bulgaria that provide cancer treatment monitor patient opinions and satisfaction with the care they received continuously. This patient feedback is taken into consideration and influences management decisions. However, this practice is not mandatory, and is rarely observed in public health institutions and hospitals.

A 2023 survey supported by the America for Bulgaria Foundation, involving 417 patients who underwent cancer treatment in the last five years, revealed that 67% of respondents rated their treatment as very good or good. This subjective assessment is validated by the relatively low number of complaints related to oncological treatment in Bulgaria. In 2023, the

executive agency Medical Supervision received 643 complaints, of which only 21 (3%) were related to cancer treatment. In four of these cases, violations of existing regulations were detected.

5.3 Costs and value for money

Public expenditure on oncological treatment in Bulgaria doubled from 2018 to 2023

Diagnosis and treatment of oncological diseases are primarily financed through the NHIF. Over the past five years, direct costs for oncological treatment in Bulgaria have more than doubled – from BGN 640 million to BGN 1.5 billion in 2023 (Hospital Index, 2024b). This expenditure covers a range of costs, including surgical treatment activities, medical devices, drug treatment-related activities, medicines, radiotherapy, palliative care and continuous follow-up of patients after the acute treatment phase.

According to the OECD's SPHeP model, the per capita health expenditure on cancer care is expected to grow by 45% in Bulgaria between 2023 and 2050, compared to 59% in the EU (OECD, 2024b).

Additional payments for cancer care are required at every stage of the patient's treatment

Despite rising public expenditure, patients in Bulgaria often face financial barriers to diagnosis and treatment for cancer (see Section 5.1). The primary reason is that cancer treatment costs are not fully covered by the NHIF and other public funding schemes.

A survey conducted among members of the Association of Bulgarian Insurers, which includes 11 of the largest voluntary insurance companies in the country, revealed that the benefits they paid per patient in 2023 varied on average from BGN 289 to BG 1 156, according to data from seven insurers.

Additional payments for cancer are required at every stage of the patient's treatment journey. During the diagnostic process, additional payments are required for several highly specialised and high-tech examinations, such as tumour markers, immunohistochemistry and various genetic tumour tests. Although some of these are covered by the NHIF, access to highly specialised tests and imaging diagnostics (such as CT, MRI and positron emission tomography scans) is often difficult. The only option for access may be through private institutions that do not have a contract with the NHIF.

For medical devices, additional payments are almost always required, as expensive devices are not fully covered, and others are only partly covered by the NHIF. This includes sets for laparoscopic operations, materials for abdominal wall plastic, automatic suturers for open abdominal operations and some venous ports used in various types of chemotherapy.

Continuous follow-up of patients also typically requires additional payments. Often, follow-up is carried out formally and not to the full extent required, leading to unsatisfactory quality of service.

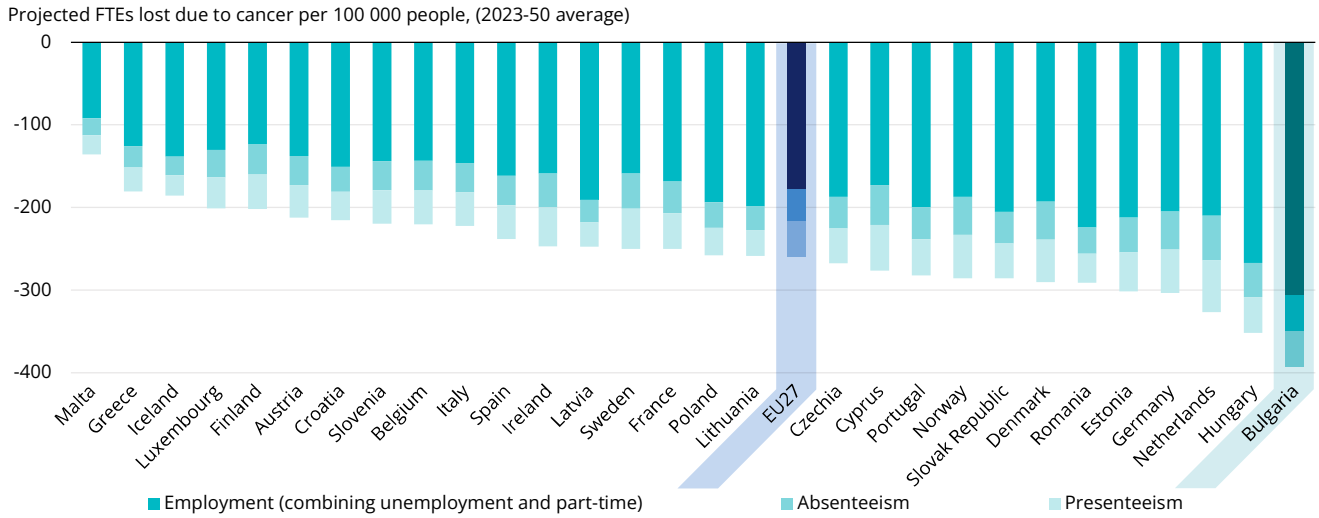
Palliative care is another area where financial barriers exist. Placement in a hospice is not covered by the NHIF; this often results in such care not being performed at all. Palliative care covered by the NHIF also does not include home care and treatment, even though most patients remain at home. Although the period covered by the NHIF for palliative care was extended to 30 days in 2023, it is still classified as insufficient and of unsatisfactory quality (Hospital Index, 2024b).

Cancer is expected to lead to large indirect costs in Bulgaria over 2023-50

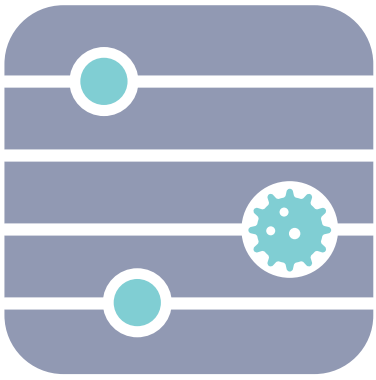
It is estimated that cancer will have a major impact on the workforce in Bulgaria. According to OECD SPHeP modelling work, between 2023 and 2050 on average, cancer is expected to lead to a loss of 305 full-time equivalent workers (FTEs) per 100 000 people due to reduced employment, as well as 41 FTEs per 100 000 due to absenteeism and 43 FTEs per 100 000 due to presenteeism (Figure 16).[7] These are the highest losses across the EU.

7 *Presenteeism refers to lost productivity that occurs when employees are not fully functioning in the workplace because of an illness, injury or other condition.*

Figure 16. Bulgaria is expected to face the highest employment losses between 2023-50



Note: The EU average is unweighted.
Source: OECD (2024), Tackling the Impact of Cancer on Health, the Economy and Society, https://doi.org/10.1787/85e7c3ba-en.

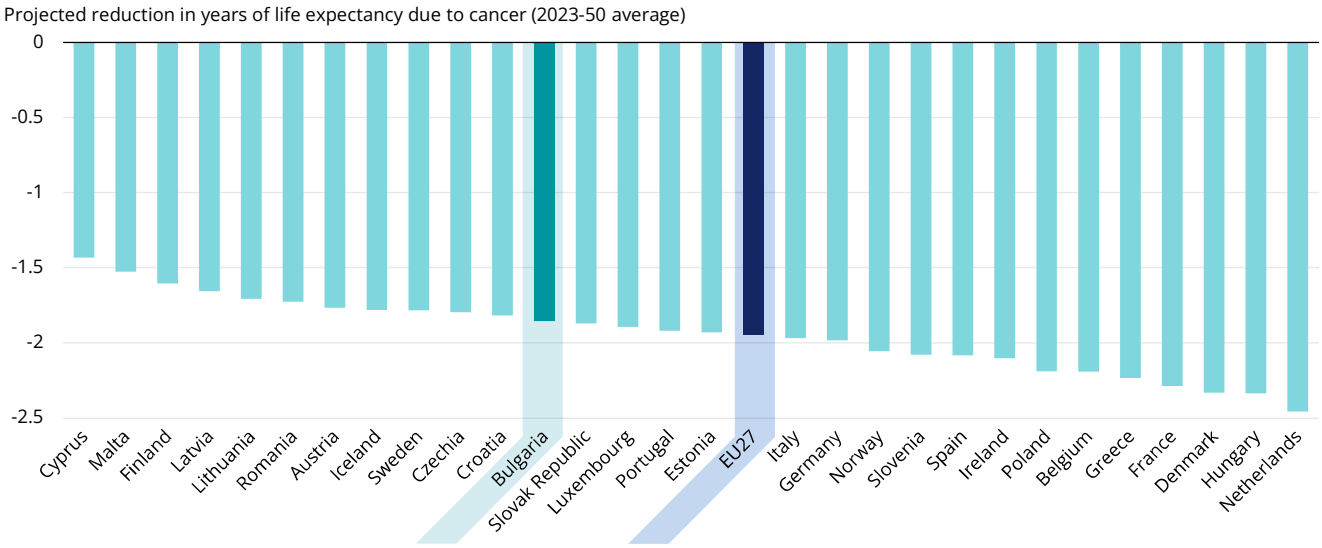


5.4 Well-being and quality of life

Cancer is expected to reduce life expectancy and negatively affect the mental health of the Bulgarian population in the decades ahead

According to OECD SPHeP modelling work, for the period 2023-50, the estimated loss in life expectancy due to cancer is estimated at 1.8 years in Bulgaria, which is close to the average across the EU (Figure 17). For context, it took Bulgaria from 2010 to 2019 to increase its life expectancy by 2 years. In addition, cancer takes a substantial toll on the mental health of the patients through its associated symptoms and treatment side effects, impact on daily life, social roles and work. According to the OECD's SPHeP model, Bulgaria is expected to have much higher depression rates because of cancer, at an additional age-standardised rate of 27 cases per 100 000 per year. This is the fifth highest among all EU+2 countries, following Portugal, the Slovak Republic, Spain and Slovenia.

Figure 17. Cancer is expected to reduce life expectancy in Bulgaria



Note: The EU average is unweighted.
Source: OECD (2024b), Tackling the Impact of Cancer on Health, the Economy and Society, https://doi.org/10.1787/85e7c3ba-en.

Bulgaria's National Cancer Plan 2021-27 aims to improve the quality of life of people living with cancer

The National Cancer Plan 2021-27 covers the topic of improving the quality of life of cancer patients, survivors and carers. The Plan mentions improving quality of life, satisfaction with medical and non-medical care, and reintegration of cancer patients by building an effective network of units, specialists and satisfactory communication with patients and their relatives. This process entails co-ordination between medical, pharmaceutical, psychological, social and palliative care.

Availability of palliative care is insufficient, and marked by geographical inequalities

Currently, palliative care for oncological patients in Bulgaria is provided in 25 medical facilities throughout the country, including university hospitals, specialised and multidisciplinary hospitals, and complex oncology centres. The amount of palliative care bed-days is insufficient in the context of rising cancer mortality, with more than 17 000 deaths from oncological diseases in Bulgaria in 2021. Moreover, substantial inequities exist in access to end-of-life care services between the capital, large university centres and rural areas. The quality of life of a cancer patient in the capital is similar to that in high-income countries, but it is very different in other regions and smaller living areas (Kostadinov et al., 2024).

Recent steps have been taken to increase access to palliative care. The number of hospital bed-days covered by the NHIF per cancer patient for palliative care has increased, and is now set at 30 days according to the last framework contract between the NHIF and medical care providers. A lack of adequate regulation and established protocols for providing palliative care, as well as trained personnel are barriers to ensuring availability of palliative care.

Access to high-quality care also depends on the availability of sufficient staff with adequate competences in palliative and end-of-life care. In

Bulgaria, there are no specialisations in palliative care for either doctors or nurses. Typically, intensive care specialists, medical oncologists, GPs and internal medicine specialists are those providing end-of-life care. The shortage of nurses in Bulgaria (see Section 5.1) is the biggest challenge to the quality of palliative care. There are no nurses specialising in oncology care outside the capital, and even fewer are prepared for palliative care since no such specialty exists. Thus, care is often provided at home by relatives without professional support, which hardly covers the complex needs of cancer patients.

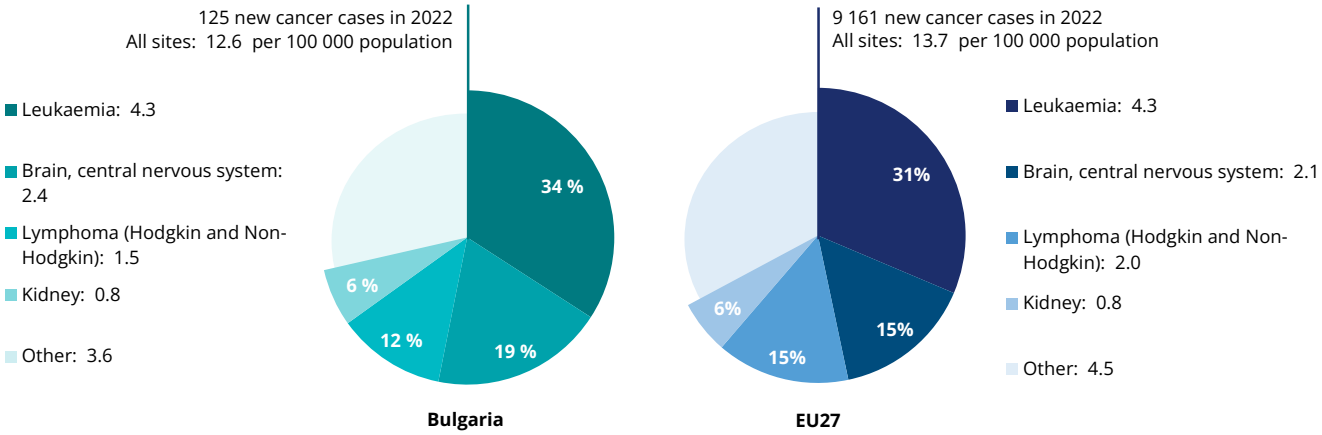
Additionally, many privately provided initiatives exist, but they are not funded through the public health insurance scheme, creating deepening inequalities. Studies on physical, emotional, psychological and social changes after cancer treatment in surviving patients are scarce in Bulgaria and not sufficient, considering their impact on individual quality of life (Encheva-Malinova et al., 2019).

6. Spotlight on paediatric cancer

According to ECIS, it is estimated that in Bulgaria, 125 children and adolescents up to age 15 were diagnosed with cancer in 2022. Incidence rates for ages 0-14 were estimated at 12.6 per 100 000 children, lower than the EU average of 13.7 (Figure 18). In Bulgaria, incidence rates among boys are higher than among girls, similar to the trend across the EU. The most common cancer types are leukaemia with 4.3 cases per 100 000 children (34%), brain and central nervous system cancers with 2.4 cases per 100 000 (19%), lymphoma with 1.5 cases per 100 000 (12%), and kidney cancer, with 0.8 cases per 100 000 (6%). While childhood cancer incidence rates are lower in Bulgaria than the EU, the mortality rates are higher according to Eurostat, with a 3-year average mortality rate of 2.9 per 100 000 children as compared to 2.1 in the EU.

Figure 18. Estimated cancer incidence among children in Bulgaria is slightly lower than in the EU

Age-standardised incidence rate per 100 000 population (aged 0-14), estimates, 2022



Notes: 2022 estimates are based on incidence trends from previous years, and may differ from observed rates in more recent years. "All sites" includes all cancer sites except non-melanoma skin cancer.
Source: European Cancer Information System (ECIS) for cancer incidence. From https://ecis.jrc.ec.europa.eu, accessed on 10 March 2024. © European Union, 2024.

Bulgaria has three centres for childhood cancer care. Paediatric care including child oncological care in Bulgaria has never been separated into specialist paediatric hospitals. Rather paediatric departments are an integral part of big multi-profile hospitals, so the three centres that provide paediatric oncological care in Bulgaria are based in three of the biggest university hospitals – one in University Hospital "Tsaritsa Yoana" in Sofia, one in University Hospital "St. George" in Plovdiv, and the third in University Hospital "St. Marina" in Varna. Since 2012, there is a national society for paediatric haematology and oncology which is working to assure a network of care across these three centres and improve the quality of data provided to the national cancer registry. Bulgaria is also an affiliated member of European Reference Network on Paediatric Cancer (ERN PaedCan)

Eight out of 13 infrastructure and treatment modalities, including stem cell transplants, photon radiation therapy, and palliative care, are available for paediatric cancer patients in Bulgaria. However, proton radiation therapy, brachytherapy and survivorship care are not available to childhood cancer patients.

Only 44% of essential medicines to treat childhood cancer are available in Bulgaria, the lowest in the EU and far below the EU27 average of 76% (Vassal et al., 2021). The country has experienced recurrent shortages of essential cancer medicines used to treat paediatric brain tumours and leukaemia. Of the 436 clinical trials involving childhood cancer patients in Europe between 2010 and 2022, Bulgaria participated in only 6 (1%), considerably lower than the EU average of 12%.

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Country abbreviations

Austria	AT	Denmark	DK	Hungary	HU	Luxembourg	LU	Romania	RO
Belgium	BE	Estonia	EE	Iceland	IS	Malta	MT	Slovak Republic	SK
Bulgaria	BG	Finland	FI	Ireland	IE	Netherlands	NL	Slovenia	SI
Croatia	HR	France	FR	Italy	IT	Norway	NO	Spain	ES
Cyprus	CY	Germany	DE	Latvia	LV	Poland	PL	Sweden	SE
Czechia	CZ	Greece	EL	Lithuania	LT	Portugal	PT		

European Cancer Inequalities Registry

Country Cancer Profile 2025

The European Cancer Inequalities Registry is a flagship initiative of the Europe's Beating Cancer Plan. It provides sound and reliable data on cancer prevention and care to identify trends, disparities and inequalities between Member States and regions. The Registry contains a website and data tool developed by the Joint Research Centre of the European Commission (https://cancer-inequalities.jrc.ec.europa.eu/), as well as an alternating series of biennial Country Cancer Profiles and an overarching Report on Cancer Inequalities in Europe.

The Country Cancer Profiles identify strengths, challenges and specific areas of action for each of the 27 EU Member States, Iceland and Norway, to guide investment and interventions at the EU, national and regional levels under the Europe's Beating Cancer Plan. The European Cancer Inequalities Registry also supports Flagship 1 of the Zero Pollution Action Plan.

The Profiles are the work of the OECD in co-operation with the European Commission. The team is grateful for the valuable comments and suggestions provided by national experts, the OECD Health Committee and the EU Thematic Working Group on Cancer Inequality Registry.

Each Country Cancer Profile provides a short synthesis of:

- the national cancer burden
- risk factors for cancer, focusing on behavioural and environment risk factors
- early detection programmes
- cancer care performance, focusing on accessibility, care quality, costs and quality of life.

Please cite this publication as:
OECD/European Commission (2025), *EU Country Cancer Profile: Bulgaria 2025,* EU Country Cancer Profiles, OECD Publishing, Paris, https://doi.org/10.1787/c6533317-en.

Series: EU Country Cancer Profiles

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