



ROMANIA

Country Cancer Profile

2023

The Country Cancer Profile Series

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 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 inputs received from national experts and comments provided by the OECD Health Committee and the EU Expert Thematic 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 also come from the World Health Organization (WHO), the International Agency for Research on Cancer (IARC), the International Atomic Energy Agency (IAEA), the Institute for Health Metrics and Evaluation (IHME) 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. 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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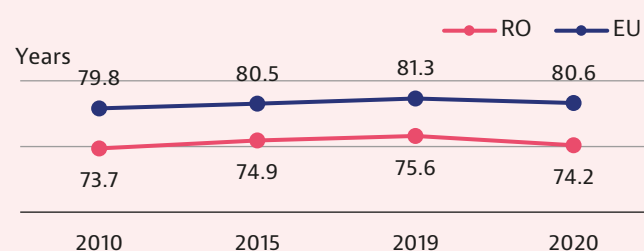
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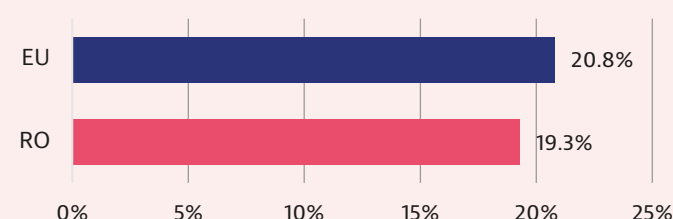
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Summary of the main characteristics of the health system

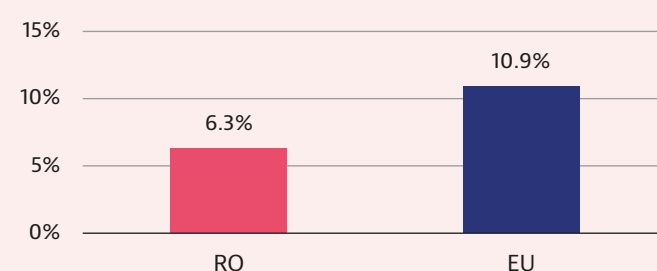
LIFE EXPECTANCY AT BIRTH (YEARS)



SHARE OF POPULATION AGED 65 AND OVER (2021)

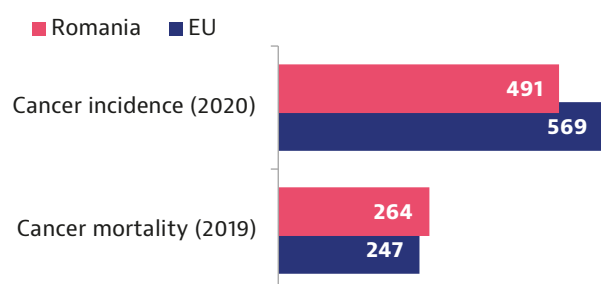


HEALTH EXPENDITURE AS A % OF GDP (2020)

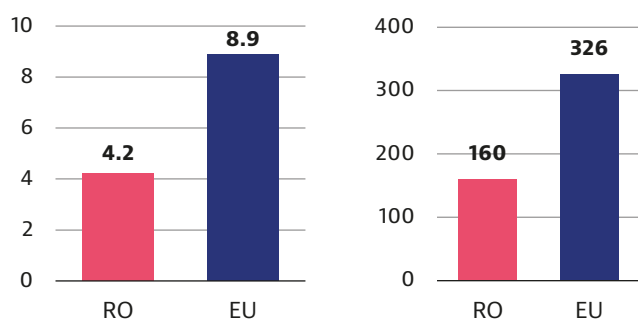
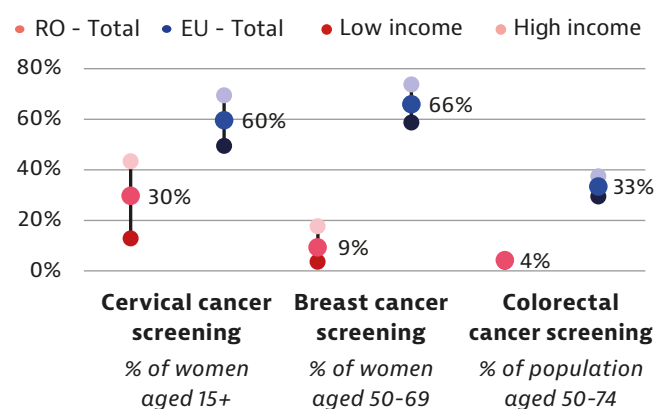
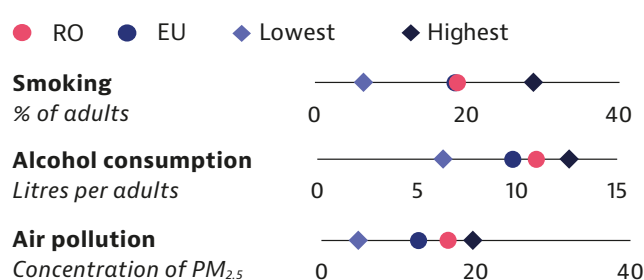


Source: Eurostat Database.

1. Highlights



Age-standardised rate per 100 000 population



Number of radiation therapy centres per 100 000 population, 2007-22

Total cost of cancer (EUR per capita PPP), 2018

Cancer in Romania

Cancer mortality is above the EU average, and has increased for six cancer types since 2000. This may reflect suboptimal performance in screening and early detection. The National Health Strategy 2022-2030 and the National Cancer Plan 2022-2027, both undergoing public consultation, draw on the Europe's Beating Cancer Plan and address cancer control in a structured way.

Risk factors and prevention policies

Romania lags behind other EU countries on most cancer risk factors, highlighting the need for more prevention efforts. Smoking rates have decreased to close to the EU average, but gender and social inequalities are marked. Bans on indoor smoking and on selling alcohol to those aged under 18 years, and restrictions on advertising are legally regulated.

Early detection

The colorectal, breast and cervical cancer screening pilot programmes in development are expected to yield results showing the feasibility of regional and national rollouts after 2023. Key challenges include ensuring adequate staffing, compliance with screening quality standards and ensuring continuity of services.

Cancer care performance

Cancer care and treatment are free of charge for all patients. Financial and access barriers persist, however – particularly to early diagnostic and outpatient services, and especially for some vulnerable groups. These are due to uneven distribution of services and a lack of continuity between different levels of service providers. Access to novel therapies is slower in Romania than across the EU. Human resources shortages place additional strain on timely delivery of care.

2. Cancer in Romania

Overall cancer incidence in Romania is below the EU average

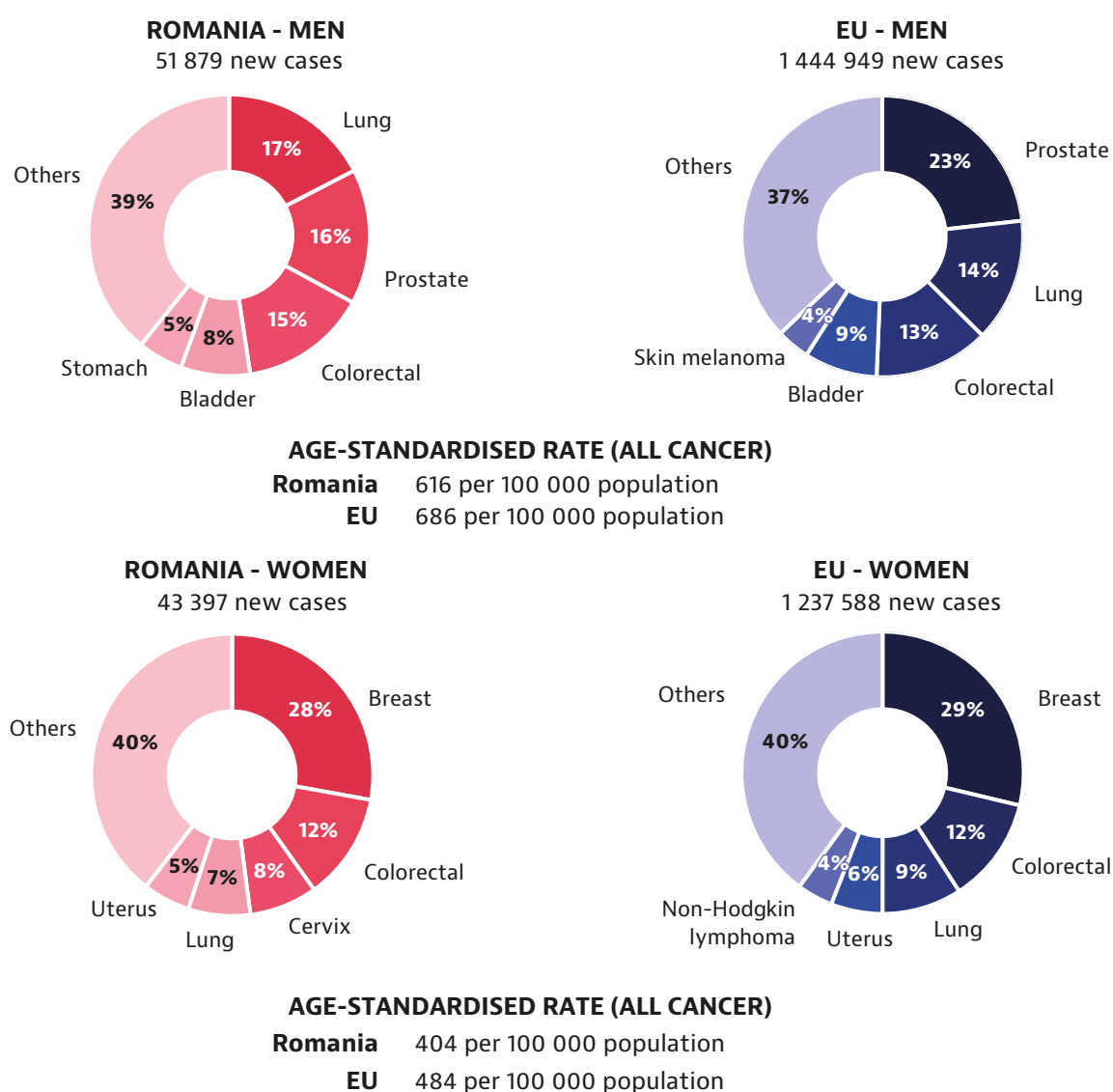
According to European Cancer Information System (ECIS) of the Joint Research Centre based on incidence trends from pre-pandemic years, around 95 000 new cases of cancer were expected in Romania in 2020. Age-standardised incidence rates for all cancers were expected to be 10 %

lower for men and 16 % lower for women than the EU averages. Among women, cervical cancer is the third most common cancer, after breast and colorectal cancer which differs from the pattern across the EU (Figure 1).

In 2020, gastric (stomach) cancer was expected to constitute 5 % of new cancer cases in men and 3 % in women (higher than the EU average), and

Figure 1. More than 95 000 new cancers cases were expected in Romania in 2020

Distribution of cancer incidence by sex in Romania and the EU



Note: Corpus uteri does not include cancer of the cervix. These estimates were created before the COVID-19 pandemic, based on incidence trends from previous years, and may differ from observed rates in more recent years.

Source: European Cancer Information System (ECIS). From <https://ecis.jrc.ec.europa.eu>, accessed on 09/05/2022. © European Union, 2022.

skin melanoma was expected to constitute 2 % of new cancer cases in both men and women (lower than the EU average). For paediatric cancer, the estimated age-standardised incidence rate in children under 15 years in 2020 was 8 per 100 000, which is lower than the EU average (15 per 100 000 population).

Romania has no national cancer registry, and cancer incidence reporting in the routine information system is fragmented.

Estimated cancer prevalence in Romania is below the EU average

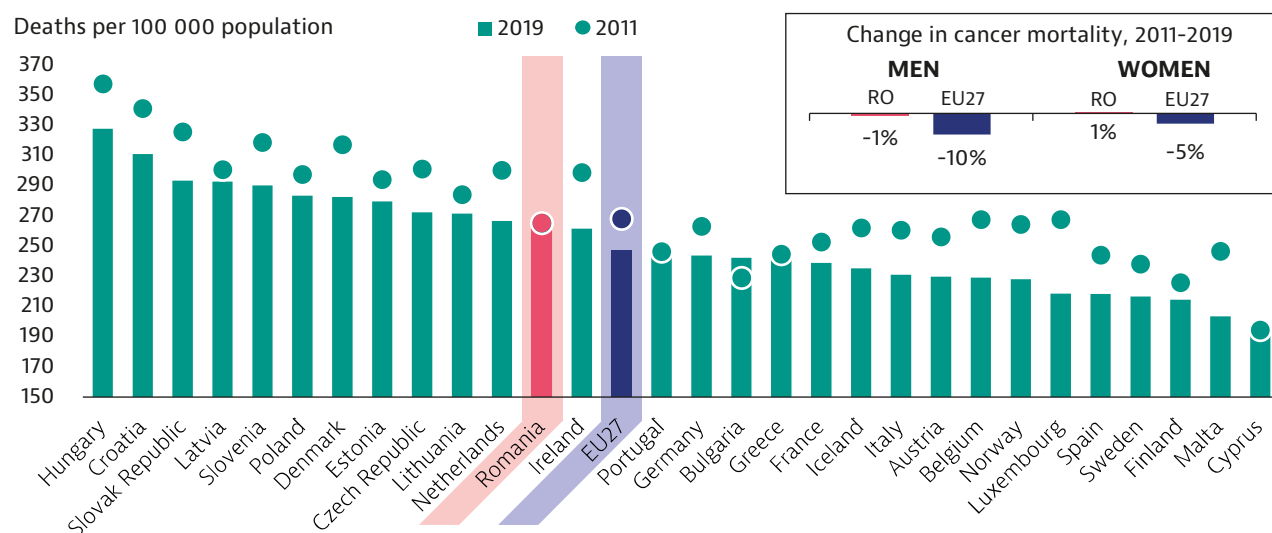
IARC estimates 260 884 prevalent (five years) cancer cases in Romania in 2020 (50.2 % in men and 49.8 % in women). Five-year prevalence rates reached 1 400 per 100 000 population among men and 1 315 per 100 000 among women in 2020, which are 31 % and 28 % lower compared to the

EU averages. The National Oncology Programme reported 122 076 cases of patients undergoing treatment (cases that had been diagnosed and were eligible for specific treatment covered by the National Health Insurance House) in 2020 and 143 661 in 2021.

Cancer mortality in Romania is higher than the EU average, and has increased over the last decade

Cancer is the second leading cause of death in Romania after cardiovascular diseases, representing 19 % of all deaths. In 2019, 50 324 people died of cancer in Romania. The age-standardised cancer mortality rate was 7 % higher than the EU average in 2019, and has shown very modest progress since 2011 compared to the EU average (Figure 2).

Figure 2. Cancer mortality saw very little change between 2011 and 2019 in Romania



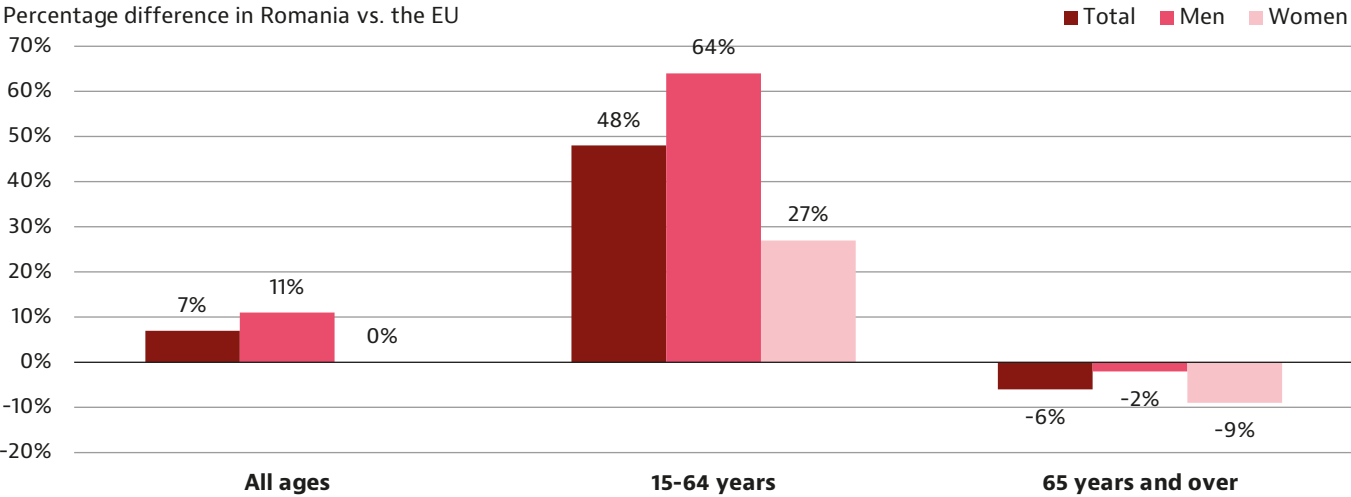
Note: The EU average is weighted (calculated by Eurostat for 2011-2017 and by the OECD for 2018-2019).
Source: Eurostat Database.

While cancer mortality decreased by 1 % among men and increased by 1 % among women in Romania in 2011-2019, across the EU it decreased by 10 % among men and by 5 % among women. The difference in overall cancer mortality between Romania and the EU average increased from -1 % to 7 % during the decade because of the modest progress registered in Romania. This relates in particular to higher mortality rates among the population aged 15-64 years (Figure 3). In 2019, the mortality rate among men aged 15-64 years was 64 % higher than the EU average.

Lung and colorectal cancers are the two leading causes of death by cancer

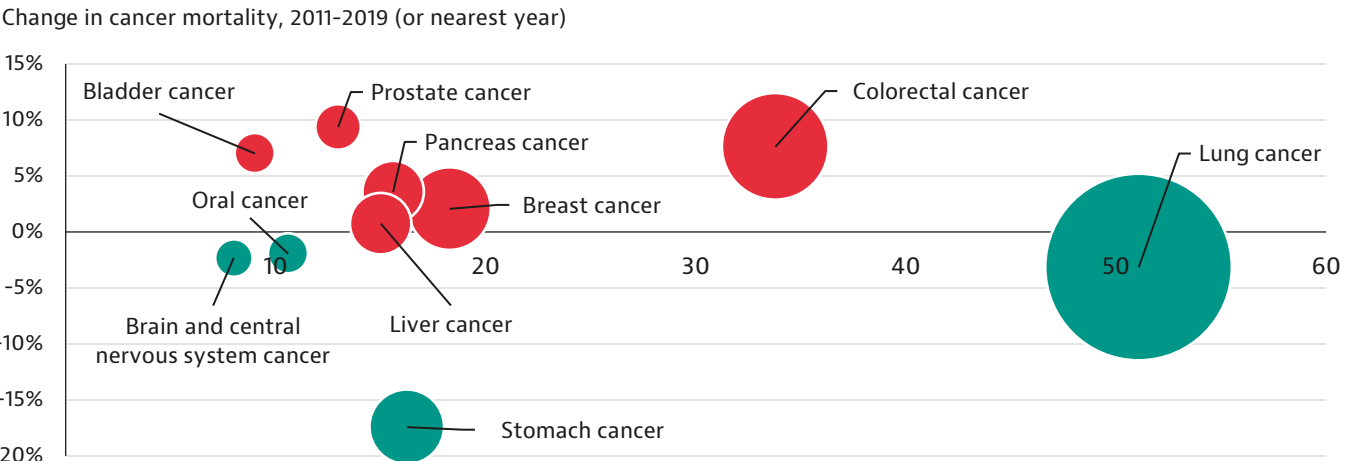
The leading causes of death by cancer in Romania are lung, colorectal and prostate cancer among men, and breast, lung, colorectal and cervical cancer among women. Romania experienced a slight increase in mortality in six of the top ten causes of death by cancer during the last decade (Figure 4).

Figure 3. Cancer mortality among people aged 15-64 years is particularly high in Romania in 2019



Source: Eurostat Database.

Figure 4. Cancer mortality increased for six cancer types in 2011-2019



Age-standardised mortality rate per 100 000 population, 2019

Note: Red bubbles signal an increase in the percentage change in cancer mortality during 2011-2019; green bubbles signal a decrease. The size of the bubbles is proportional to the mortality rates in 2019. The mortality of some of these cancer types is low; hence, the percentage change should be interpreted with caution. Bubble sizes for mortality rates are not comparable between countries.
Source: Eurostat Database.

Decreasing trends were seen for lung, gastric (stomach), oral and brain cancer, but the reductions were lower than those seen in the EU. For example, lung cancer mortality in Romania decreased by 3 %, compared to 9 % across the EU. Romania also has particularly high mortality rates for gastric (stomach) and oral cancers. Although gastric (stomach) cancer mortality decreased by 17 % over the last decade, it remained 60 % higher than the EU average in 2019. It accounted for an overall mortality rate of 16 per 100 000 population, compared to 10 per 100 000 population in the EU. Oral cancer mortality also remained 83 % higher

in Romania than the EU. In 2019, skin melanoma accounted for an overall mortality rate of 2 per 100 000 population (lower than the EU average of 3 per 100 000 population).

Preventable and treatable mortality rates are higher in Romania than the EU averages

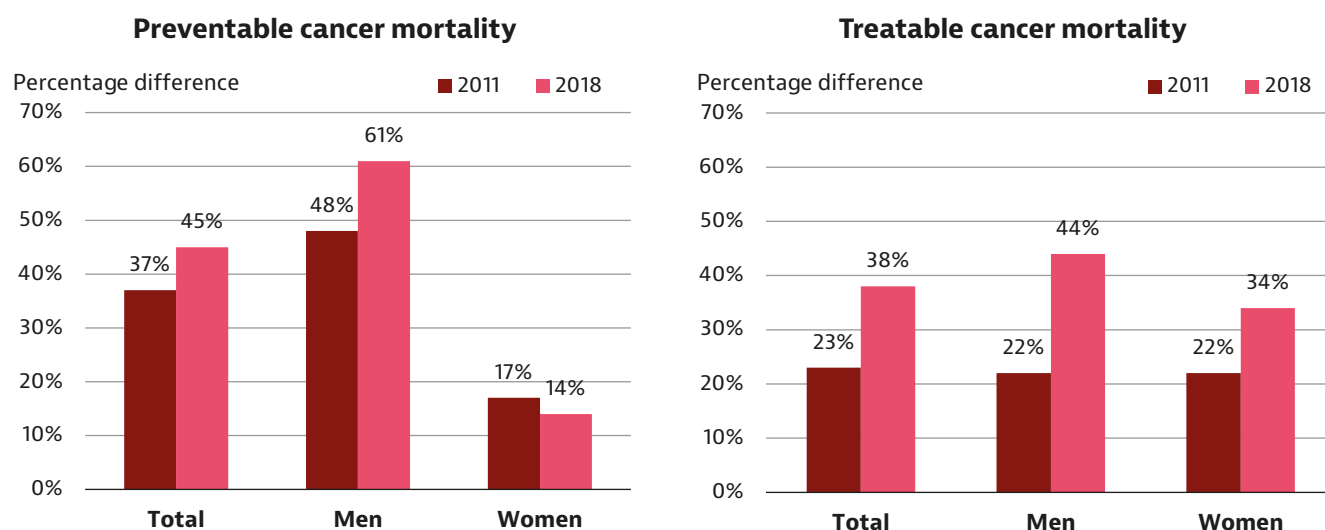
In 2018, 15 589 preventable deaths¹ and 6 999 treatable deaths² were reported in Romania, which each represent 6 % of EU preventable and treatable cancer deaths, with Romanian population accounting 4 % of the EU one.

¹ Preventable mortality refers to malignant neoplasm of lip, oral cavity, pharynx, oesophagus, stomach, liver, trachea, bronchus and lung, cervix and bladder.
² Treatable mortality refers to malignant neoplasm of colon and rectum, breast, cervix, uterus, testis and thyroid.

In 2011, the difference in preventable and treatable mortality rates between Romania and the EU was large (particularly for preventable mortality), and it increased over time (Figure 5). In 2019, the increase was particularly marked among men for both

preventable (61 % higher in Romania than the EU) and treatable mortality (44 % higher in Romania than the EU). In women, the increase in mortality was found only in treatable cancer mortality.

Figure 5. Differences in cancer mortality rates increased between Romania and the EU in 2011-2018



Source: Eurostat Database.

This evolution of cancer mortality in Romania in the last decade showed increased differences against the EU average because of slower progress in cancer control. Socioeconomic inequalities are clear in cancer mortality rates, which are higher in rural areas and in less developed regions of the country. This calls for higher prioritisation of cancer control in the future, and improved collaboration with the EU in this area, to accelerate progress in Romania.

A series of strategic documents targeting improvements in cancer control are in preparation

In March 2022, a series of public debates took place on the National Health Strategy 2022-2030.

This sets objectives for cancer control, including primary prevention, screening, access to diagnosis, treatment, rehabilitation, palliative care, improved infrastructure and quality of care.

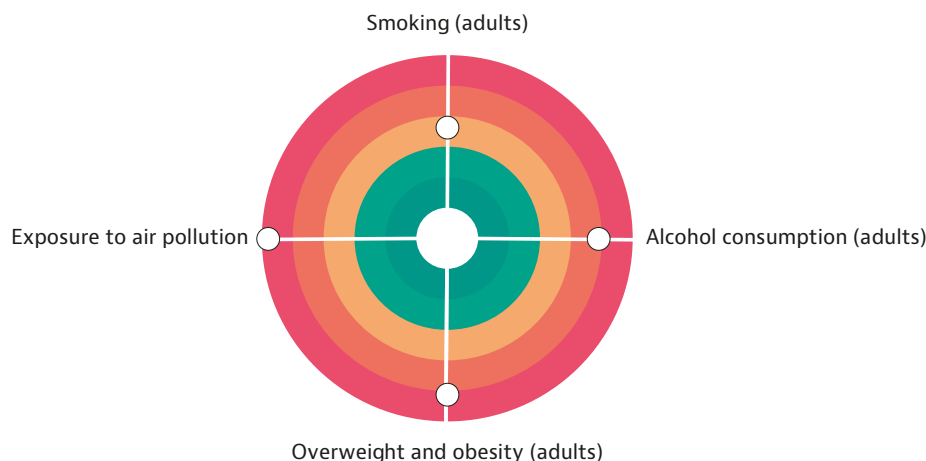
In addition, the National Cancer Plan 2022-2027, based on the four pillars of the Europe's Beating Cancer Plan (European Commission, 2021) has been put forward for adoption. For the 2021-2027 EU programming period, Romania proposed a dedicated Health Programme 2021-2027, which allocates approximately EUR 400 million to cancer prevention, early detection and screening, diagnostics and treatment, research infrastructure, training of professionals, and developing standards and protocols of practice.

3. Risk factors and prevention policies

The leading risk factors contributing to the global cancer burden in 2019 were behavioural factors (including smoking, alcohol use, overweight and obesity rates) and environmental factors. Romania has higher prevalence of most cancer risk factors

than other EU countries (Figure 6), showing the need for greater prevention efforts. In 2020, spending on preventive services represented 1.9 % of current health spending, which is lower than the EU average of 3.4 %.

Figure 6. Cancer risk factors in Romania are higher than in most EU countries



Note: 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.

Sources: OECD calculations based on the European Health Interview Survey (EHIS) 2019 for smoking and overweight/obesity rates, OECD Health Statistics 2022 and WHO Global Information System on Alcohol and Health (GISAH) for alcohol consumption (2020) and Eurostat for air pollution (2019).

Prevalence of smoking among adults is close to the EU average

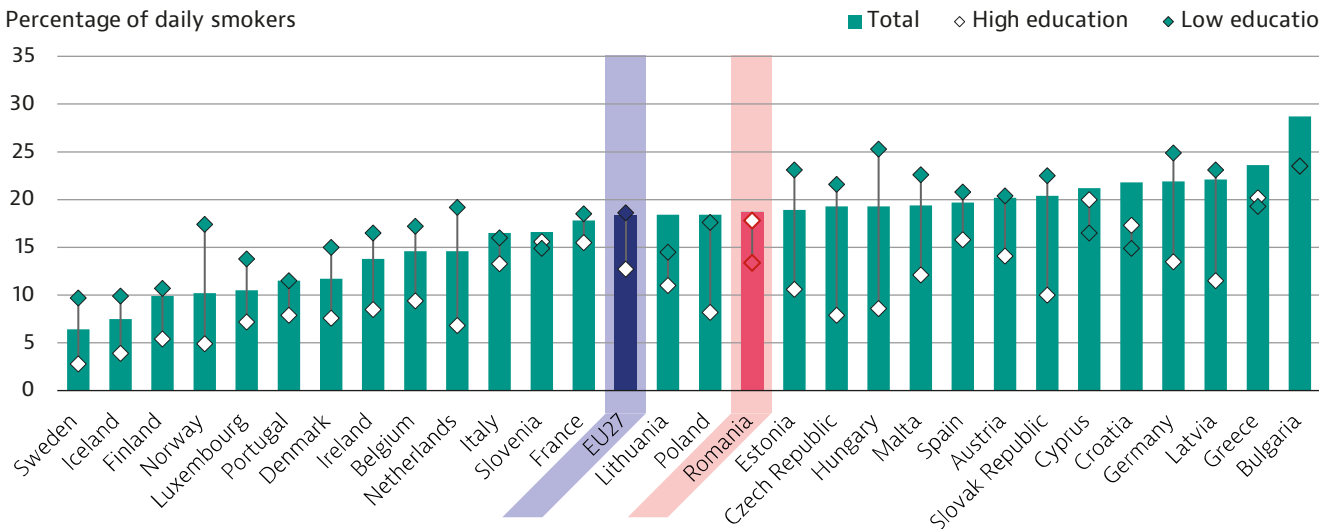
Cigarette smoking rates among adults in Romania have slightly declined since 2008, reaching 18.7 % in 2019, which is close to the EU average (18.4 %). Smoking rates among men (30.6 %) are four times higher than those among women (7.7 %).

There is a reversed social gradient in smoking: prevalence of smoking is higher among people with higher (22 %) than lower (16 %) incomes – a

6 percentage-point difference. It is also higher among people with higher (18 %) than lower (13 %) education levels – a 5 percentage-point difference (Figure 7)

Smoking rates among adolescents remain higher than in most EU countries: 31 % of the population aged 15-16 years reported they had smoked during the past month in 2019, compared to an EU average of 21 %.

Figure 7. Smoking prevalence in Romania is higher in people with higher education levels



Note: The EU average is weighted (calculated by Eurostat). Source: Eurostat Database (EHIS). Data refer to 2019.

Alcohol consumption remains high and is a major public health concern in Romania

In 2020, Romanians drank on average 11 litres of pure alcohol per person aged 15 years and over per

year (18.6 litres among men and 5.5 litres among women), which is slightly above the EU average of 9.8 litres per capita.

Eurostat EHIS data for 2014 show a higher proportion of hazardous alcohol drinkers in Romania (4.2 %) than the EU (2.7 %), with a significant gap between Romanian men (7.7 %) and women (0.9 %). Hazardous alcohol drinking prevalence is 3 percentage points higher among those with lower than higher education levels, and 4 percentage points higher among those on lower than higher incomes. Contrary to the EU averages, the proportions of hazardous alcohol drinkers are higher among those aged 15-64 years than among those aged 65 years and over, and nearly 3 folds higher in people living in rural than urban areas.

Estimated incidence of new alcohol-related cancers in 2020 was 47 % higher in Romania than the EU average, with significant differences between men (29.1 cases per 100 000) and women (8.7 cases per 100 000) (Rumgay et al., 2021).

Overweight and obesity rates rose over the past years

EHIS data show a higher increase in adult overweight and obesity rates in Romania than across the EU. Overweight and obesity rates in Romania rose from 54 % in 2014 to 59 % in 2019, and are more prevalent among men, people aged 15-64 years and those on lower incomes. Overweight and obesity rates among adolescents also increased over the last two decades, with one in five 15-year-olds falling into these categories in 2018, which is slightly above the EU average (OECD/European Observatory on Health Systems and Policies, 2021).

Overall, 3 300 cancers per year were attributable to overweight and obesity in Romania and over two thirds of these were in women (Arnold et al., 2015). Poor nutrition and low levels of physical activity are main contributors to overweight and obesity.

Air pollution in Romania is responsible for a larger proportion of deaths compared to the EU

Exposure to air pollution, despite decreasing, remained higher in Romania than across the EU, and was responsible for 7 % of total deaths in 2019 (vs. 4 % in the EU) (OECD/European Observatory on Health Systems and Policies, 2021). In 2019, exposure to PM_{10}^3 in Romania reached 25.6 $\mu g/m^3$, which is higher the EU average (20.5 $\mu g/m^3$). Romania also had a higher concentration of $PM_{2.5}$ than in the EU (16.4 $\mu g/m^3$ vs. 12.6 $\mu g/m^3$), the third highest across EU countries in 2019. Cancers related to air pollution were responsible for 7.2 deaths per 100 000 population and 179.5 DALYs per 100 000 in 2019 (IHME, 2019).

Romania lags behind the EU in prevention of human papillomavirus-related cancers

In Romania, rates of cervical cancer incidence (32.3 per 100 000 women) and mortality (16.9 per 100 000) are the highest in the EU. So far, Romania has not implemented a consolidated human papillomavirus (HPV) vaccination programme (Box 1). Fewer than 30 % of women reported having had a cervical smear test and fewer than 10 % of teenaged girls had been vaccinated against HPV infection in 2019. The estimated age-standardised rate for HPV infection was also one of the highest in EU (between 12.2 and 15.4 per 100 000 population).

Box 1. Romania has a discontinuous human papillomavirus vaccination programme

In Romania, HPV vaccination coverage is low, despite efforts by the government to implement a programme soon after the vaccine's approval. The first attempt started in 2008, with a programme offered free of charge, targeting girls aged 10-11 years countrywide. The programme experienced high vaccine hesitancy from its introduction (Diaconescu et al., 2021).

In 2009, the vaccination programme was relaunched with the help of a communication campaign, but still with very modest results. The programme was stopped for almost 10 years, and resumed in 2019. At present, vaccination is offered free of charge to girls aged 11-18 years. It is provided in family physician offices, based on a preliminary written request by parents.

HPV vaccination is now gaining public interest: 75 % of respondent mothers were in favour of HPV vaccination for their daughters in 2020. However, bureaucratic barriers also hinder access to the HPV vaccine, such as lack of predictability in numbers and availability of doses, and the need for a prior written request (National Institute of Public Health & Institute of Oncology Cluj, 2020). Alongside the free vaccination programme for girls, the HPV vaccine is available to women of all ages for an out-of-pocket payment. In 2022 and 2023, Romania plans to reinforce the HPV vaccination programme, along with awareness campaigns targeting parents and young girls in rural communities, those on lower incomes and minority ethnic populations.

Some prevention policies have been implemented to reduce risk factors to health

Tobacco control policies have been adopted in Romania over the last two decades. These include a total smoking ban in public places, a ban of tobacco advertising, a ban of tobacco selling to minors and an increase in excise taxes. Smoking cessation programmes are also offered on an opportunistic

3 Particulate matter (PM) is classified according to size: PM_{10} refers to particles less than 10 micrometres in diameter; $PM_{2.5}$ to particles less than 2.5 micrometres in diameter.

basis, and this is also the case for the smoking prevention programmes among children.

Alcohol-related policies in Romania include a requirement for zero blood alcohol for drivers, bans on selling alcohol to minors and in proximity to schools, on consumption in the workplace and on selling at sport events; and advertising restrictions. However, further progress is needed to improve cancer prevention, specifically in the areas of screening and counselling by primary care services; strengthening marketing regulations

– particularly advertising targeting younger people; and using health warning labels on alcohol containers (OECD, 2021). In addition, a National Committee on Alcohol Policies was created in 2015, but an action plan to tackle harmful alcohol consumption is not yet in place.

Public health professionals have made efforts to promote the European Code Against Cancer⁴ and to use it as a health promotion tool on various occasions, including disseminating it in high schools and universities.

4. Early detection

Cancer screening has been identified as a priority area for public health intervention

Early detection and cancer screening are recognised as public health priorities for intervention in the former National Health Strategy 2014-2020. However, Romania lacks systematic cancer screening practices, and spending on prevention is low.

During the last five years Romania has put effort and resources into developing population-based screening programmes (screening offered to a specific at-risk target population) for cervical, breast and colorectal cancers, preparing and implementing pilot programmes financed with EU funds. These pilots are designed to develop the infrastructure and national guidelines for screening, to train health professionals and to target vulnerable population groups.

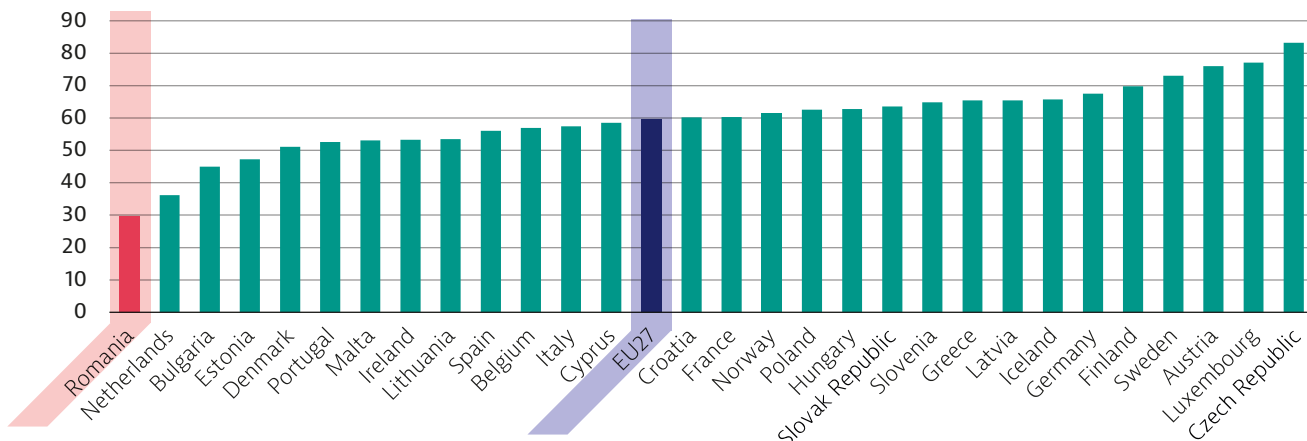
Public awareness of cancer screening has also improved in recent years. A national survey on cancer attitudes showed that over 50 % of the population believes that cancers can be detected early, and 80 % agreed that cancers can be prevented (National Institute of Public Health & Institute of Oncology Cluj, 2020). This shows that people would generally be willing to participate in cancer screening programmes, provided the service is available and easily accessible to them.

Uptake of cervical cancer screening is the lowest in the EU, and has a high social gradient

In 2019, fewer than 30 % of Romanian women reported having had a cervical smear test in the past three years, which is half the EU average (Figure 8). Self-reported cervical cancer screening participation rate was 3.3 times more frequent among women on higher (43 %) than lower (13 %) income.

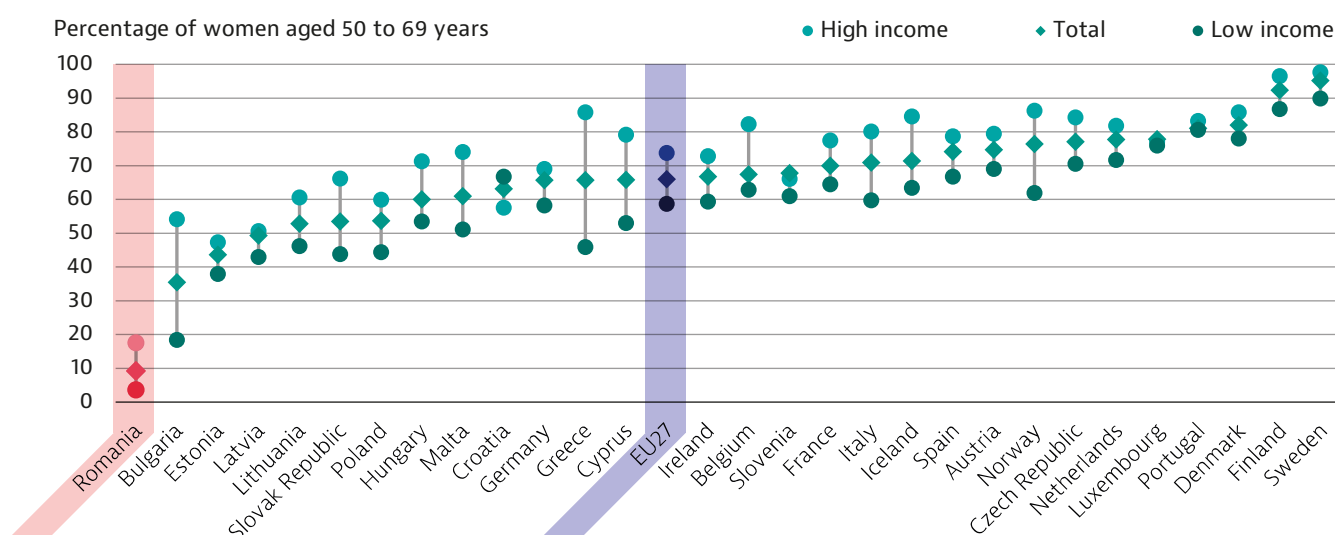
Figure 8. Cervical cancer screening remains half the EU average

Percentage of women aged 15 years and over



Note: The EU average is weighted (calculated by Eurostat). The figure reports the percentage of women aged 15 years and over who reported having a cervical smear test in the past three years.
Source: Eurostat Database (EHIS). Data refer to 2019.

⁴ <https://cancerprevention.euro.iaarc.fr/european-code-against-cancer/>

Figure 9. Breast cancer screening rates are the lowest among EU countries

Note: The EU average is weighted (calculated by Eurostat). The figure reports the percentage of women aged 50 to 69 years who reported receiving a mammogram in the past two years.
Source: Eurostat Database (EHIS). Data refer to 2019.

incomes; 4.6 times more frequent among those with higher (51 %) than lower (11 %) education levels; and 2.3 times higher among those living in urban (31 %) than rural (13 %) areas.

The national screening programme for cervical cancer was introduced in 2012. Women aged 25-64 years are eligible to have a smear test every five years, regardless of their insurance status. During first five years, 12 % of eligible women were screened through the programme, while the rest (up to 30 %) had opportunistic testing. Several initiatives have been put in place by public health authorities to improve uptake. Based on the European guidelines for quality assurance in cervical cancer screening, a primary HPV testing strategy is being piloted, and authorities are investing in mobile units and diagnostic and treatment equipment.

Breast and colorectal cancer screening programmes are in early stages of implementation

Before 2018, opportunistic screening for breast cancer relied on individual initiatives or physician recommendations. In addition, screening required out-of-pocket payments from women who had access to private health facilities.

In 2019, only 9 % of women aged 50-69 years reported having had a mammogram within the past two years – the lowest rate across EU countries. Large socioeconomic disparities can be seen in breast cancer screening rates, with higher uptake among women on higher (17 %) than lower

(4 %) incomes (Figure 9), and among women living in urban (9 %) than rural (4 %) areas.

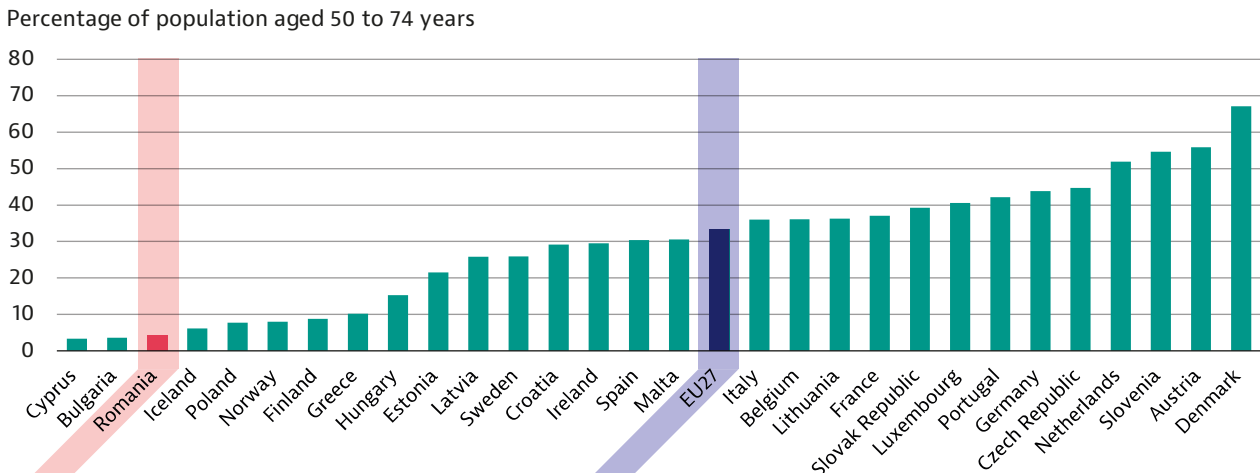
In 2018, Romania started a pilot project on breast cancer screening, targeting 3 % of the total eligible population of women aged 50-69 years. The overarching objective is to implement the European Commission Initiative on Breast Cancer recommendations, and to roll out the new breast cancer screening programme gradually nationwide from 2023. Mobile mammography units are used in the pilot programme and more are to be purchased through the National Recovery and Resilience Plan.

Romania is one of the last countries in the EU to initiate population-based colorectal cancer screening, which is currently in the planning and piloting phase. Pilot projects targeting 4 % of the total eligible population of men and women aged 50-74 years are being implemented. The country received technical assistance from the European Commission to implement the European guidelines for quality assurance in colorectal cancer screening programmes. A faecal immunochemical test, followed by colonoscopy (and treatment if necessary) is offered every two years to the population aged 50-74 years. The rate of colonoscopy uptake is over 60 % in the pilot projects, but this is due to targeted, specific support provided to individuals with positive results, who are offered counselling and material support to access colonoscopy centres. Plans to scale up the pilot into population-based screening after 2023 are in place.

In 2019, based on opportunistic screening, only 4 % of the population aged 50-74 years reported having had colorectal cancer screening within the past two years, which is well below the EU average

of 33 % (Figure 10). Disparities between sexes are small (5 % in women vs. 4 % in men), as well as between income groups (3.5 % in lower income levels and 3.9 % in higher income levels).

Figure 10. Colorectal cancer screening participation rate is among the lowest in the EU



Note: The EU average is weighted (calculated by Eurostat). The figure reports the percentage of population aged 50 to 74 years who reported having a faecal occult blood test in the past two years.
Source: Eurostat Database (EHIS). Data refer to 2019.

The screening pilot programmes for all three cancers aim to test at least 50 % of vulnerable populations – especially those living in rural areas. Regional and national rollouts are planned after 2023, but challenges remain. These relate to the scarcity of specialised professionals, uneven distribution of diagnostic and treatment facilities across the country, and lack of uniformity in following the protocols. Support services for vulnerable groups are provided by non-governmental organisations (NGOs) and patient associations, but sustainable measures still need to be identified to address the challenge of ensuring equal access for vulnerable populations to specialised services. In addition, governance and ownership of the screening programmes,

quality assurance and equity of access need to be addressed through regulatory frameworks.

Prostate and lung cancer screening will be implemented as pilot projects

Following the recently published reviews of evidence on prostate and lung cancer screening, Romania is planning to fund small-scale demonstration projects through the Health Programme 2021-2027. This is a multifund programme (European Social Fund and European Regional Development Fund) developed to address some of the structural deficits of the Romanian health system.

5. Cancer care performance

5.1 Accessibility

Access to cancer care is guaranteed by law, but financial barriers exist

In Romania, the health system is based on social health insurance. Access to cancer care is guaranteed and free of charge for citizens, regardless of their insurance status. Cancer care

is provided through hospital admission or day hospitalisation. Treatment is provided through the National Oncology Programme and includes chemotherapy, immunotherapy, hormone therapy, targeted radiation therapies, surgery, and stem cell and bone marrow transplant. Recently, CAR-T cell therapy for B-cell acute lymphoblastic leukaemia and diffuse large B-cell lymphoma treatment became available.

Despite efforts to ensure free and equitable access to cancer care, a lack of continuity between different layers of services and uneven distribution of technology and specialists result in patients paying out of pocket for private services to receive more timely access to diagnosis. Out-of-pocket payments represented 18.9 % of current health expenditure in 2019, which is above the EU average of 15.4 %. Out-of-pocket payments mostly relate to pharmaceutical spending, but many diagnostic procedures also require direct payments. Uninsured people (11 %) , mainly represented by socio-economically vulnerable people, also face financial challenges to access until a diagnosis is confirmed, as services are not covered.

Despite improvements, capacity for cancer care is below the EU average and unequally distributed

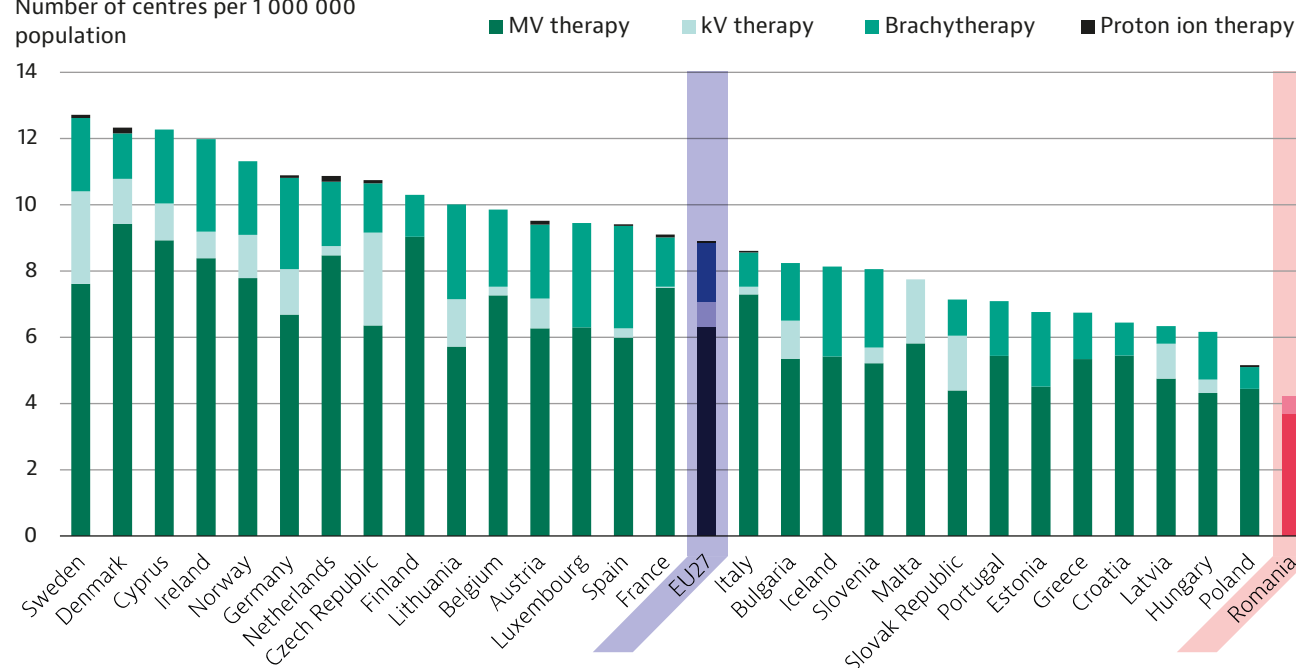
According to the National Institute of Statistics, cancer care is provided by three oncology institutes and oncology wards in 42 county hospitals and other health facilities, accounting for over 3 500 hospital beds in public and private facilities nationally in 2020.

In 2019, diagnostic capacity in Romania included 1.8 computerised tomography (CT) scanners per 100 000 population (vs. an EU average of 2.4 per 100 000) and 1.1 magnetic resonance imaging (MRI) units per 100 000 (vs. an EU average of 1.6 per 100 000), with uneven distribution across the country. The number of units had increased since 2011 – the rates had more than doubled for CT scanners and more than tripled for MRI units – but remained below the EU average.

Romania has 82 particle therapy centres, distributed among the big cities (including nine in Bucharest) and 0.4 radiation therapy units per 100 000 inhabitants, which is half the EU average (Figure 11). Of the total particle therapy equipment, 71 % is newer than 10 years old, reflecting investment in recent years, mainly from European Structural and Investment Funds and the World Bank. Distribution and coverage are expected to improve. The Health Programme 2021-2027 contains allocations to establish a proton therapy centre.

Figure 11. The density of particle therapy centres is the lowest in the EU

Number of centres per 1 000 000 population



Note: MV stands for megavolt and kV stands for kilovolt. The EU27 average is unweighted (calculated by the OECD).
Source: International Atomic Energy Agency.

The number of oncologists per 100 000 inhabitants doubled between 2005 and 2015, but remains low and unevenly distributed. In some regions, one oncologist serves over 200 000 target population. The number of oncologists increased from 683 in 2017 to 964 in 2021, and the number of radiotherapists from 239 to 366, but shortages

persist. The biggest shortage is in specialised technical staff such as medical physicists and radiation technicians, who are hard to recruit and retain in the public system because of the unattractive wages compared to those of medical staff.

Palliative care is underrepresented in Romania, and there are territorial disparities

Palliative care inpatient beds are provided in a range of settings, including public and private hospitals and NGO hospices, with a total of 1 779 beds across the country. 59 % of these are provided free of charge; the rest require payment of a fee, and are therefore not accessible to the whole population. Almost 500 additional palliative care home-based teams are also needed to cover an estimated number of 46 000 patients in need of palliative care annually (Boggust, 2017).

Action has been taken in recent years to increase palliative care capacity. The Health Programme 2021-2027 contains allocations to improve the infrastructure of palliative care, especially in regions with a high deficit.

Waiting times to access to novel cancer therapies are significant

Cancer drugs are included in a national list of medicines covered by the National Health Insurance House. At present, this list includes 162 molecules; it is updated periodically with new medicines that went through the national health technology assessment procedure. Important delays may occur between approval of a new medicine by the European Medicine Agency (EMA) and its inclusion on the national list. Between 2017 and 2020, of 160 new molecules approved by the EMA, only 38 were included in the national list by January 2022 (Newton, Scott & Troein, 2022). The time lag between marketing authorisation and availability to patients reached 899 days. While

patients experience significant delays in accessing novel therapies, however, waiting times are not monitored. Since 2017 the procedure for inclusion of cancer patients in the National Oncology Programme has been simplified, leading to a reduction in time lag from diagnosis to access to treatment.

Further, Romania pays a higher price for cancer medicines, adjusted for purchasing power parity (PPP), than high-income countries including Austria, France, Germany, the Netherlands, Sweden and the United Kingdom (Moye-Holz & Vogler, 2022).

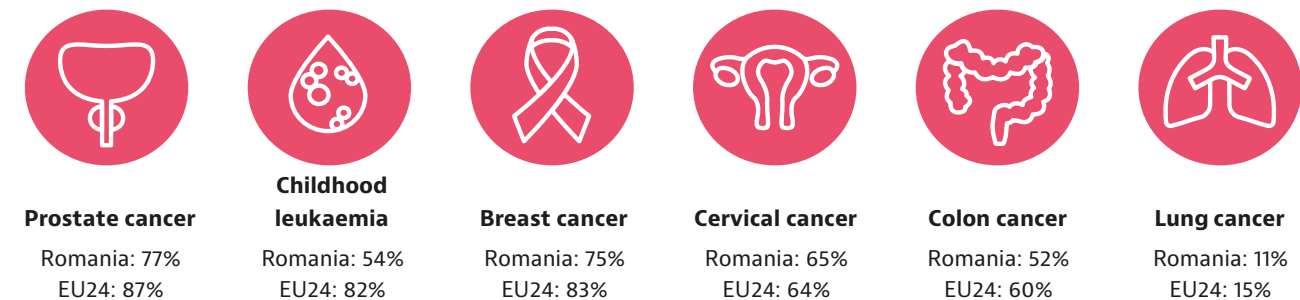
European and international clinical guidelines are transposed into national recommendations, but some heterogeneity of practice occurs. In 2022, the National Oncology Programme plans to ensure specific treatment for 143 661 patients, with a budget of EUR 640 million (National Health Insurance House, 2021).

5.2 Quality

Overall quality of cancer care lags behind the EU average

Five-year survival rates for common cancers – a marker of care quality- are far below the EU averages. For patients diagnosed between 2010 and 2014, the gap was largest for childhood leukaemia, with 54 % survival rate in Romania as compared to 82 % in the EU (Figure 12). While survival improved over time for lung, cervical and stomach cancers, it decreased for breast, colon, prostate and oesophagus cancers.

Figure 12. Five-year survival rates are lower than the EU averages for all the most common cancers



Note: Data refer to people diagnosed between 2010 and 2014. Childhood leukaemia refers to acute lymphoblastic cancer. Source: CONCORD Programme, London School of Hygiene and Tropical Medicine.

Minimum standards of cancer care are defined in law, but clinical practice varies

The majority of cancer patients are treated in the three oncology institutes, oncology wards in each major hospital and specialised private centres contracted by the Health Insurance House. One of the three oncology institutes is a member of the

Organisation European Cancer Institute network, and the other two are planning to apply for membership. Due to the lack of human resources and discontinuous investments in purchasing and maintaining technology, many oncology wards just function as intermediary stops before patients are referred to the oncology institutes.

The oncology institutes and oncology centres in large university cities follow the international cancer care protocols, but variability occurs in the rest of the cancer care facilities.

Interdisciplinary tumour boards are only available in some cancer centres

Tumour boards are seldom enforced and functioning in Romania. Major cancer centres use interdisciplinary tumour boards as a standard of practice, but they are not established in all facilities, because of a lack of health professionals.

Cancer registries do not cover the entire population, and data on quality of cancer care are lacking

One major issue in cancer control in Romania is a lack of data from cancer registries. Although regulated since 2007, only two of the eight regional registries collect data on a routine basis. Thus, data on cancer patients are of suboptimal quality, with limited coverage and completeness. This lack of data means that inequalities in cancer survival cannot be quantified. However, concentration of health workforce and technology in the university centres suggests territorial inequalities in access to cancer diagnosis and treatment services.

Data used for cancer analysis derive from aggregated data on cancer patients collected through the national health statistics system, with poor mechanisms of quality assurance and control. Data on quality of services are collected on a regular basis by the National Authority for Quality Management in Healthcare, but there is heterogeneity in reporting, and data are rarely used to analyse quality of medical practice and outcomes of cancer care.

The National Resilience and Recovery Plan has allocated funding to reforming the national health information system and to digitalisation in health. Plans have been made to establish disease registries, including for cancer, which has been identified as a priority.

Quality and safety indicators are in development for breast, colorectal and cervical cancer screening

The new cancer screening pilot programmes are developing sets of quality and safety indicators – such as coverage, compliance, technology and staffing – based on the recommendations of the European guidelines for quality assurance in cancer screening. Each of the three pilot programmes plans to establish screening boards that will be charged with regular performance assessment. Patient pathways for selected cancers will also be developed.

Policies are being implemented to improve quality of life for people with a history of cancer

In 2022, Romania initiated a series of legislative acts aiming to improve the lives of people with a history of cancer. The current regulatory norms were amended to allow cancer patients and their carers to benefit from paid psychological support and paid leave of absence. Legislation was recently adopted to establish a National Day of Cancer Survivors (on the first Sunday in June) and to confirm the right to be forgotten (a right that gives individuals the ability to exercise control over their personal data, including health information, by deciding what should be accessible to the public) in relation to access to financial products.

5.3 Costs and value for money

Public expenditure on cancer has increased substantially, but remains the lowest in the EU

Funds allocated to the National Oncology Programme increased from EUR 490 million in 2020 to EUR 633 million in 2021 (National Health Insurance House, 2022). The budget allocated to the National Oncology Programme covers medication, radiotherapy and PET-CT scans. Genetic diagnosis is covered only for Ewing sarcoma and neuroblastoma in adults and children. Immunophenotyping, cytogenetics or FISH (Fluorescence in situ hybridization) tests are covered only for leukaemia. Expenditure of the National Oncology Programme is complemented by spending on disease monitoring and hospital admissions, which are contracted by each oncology health unit. Estimated per capita expenditure for cancer accounts for 7.1 % of total health expenditure. Overall, Romania has the lowest cancer care costs in the EU, at EUR 160 per capita, adjusted for purchasing power parity (PPP), compared with an EU average of EUR 326 (Figure 13).

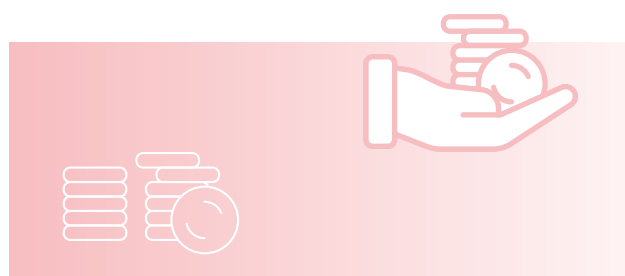
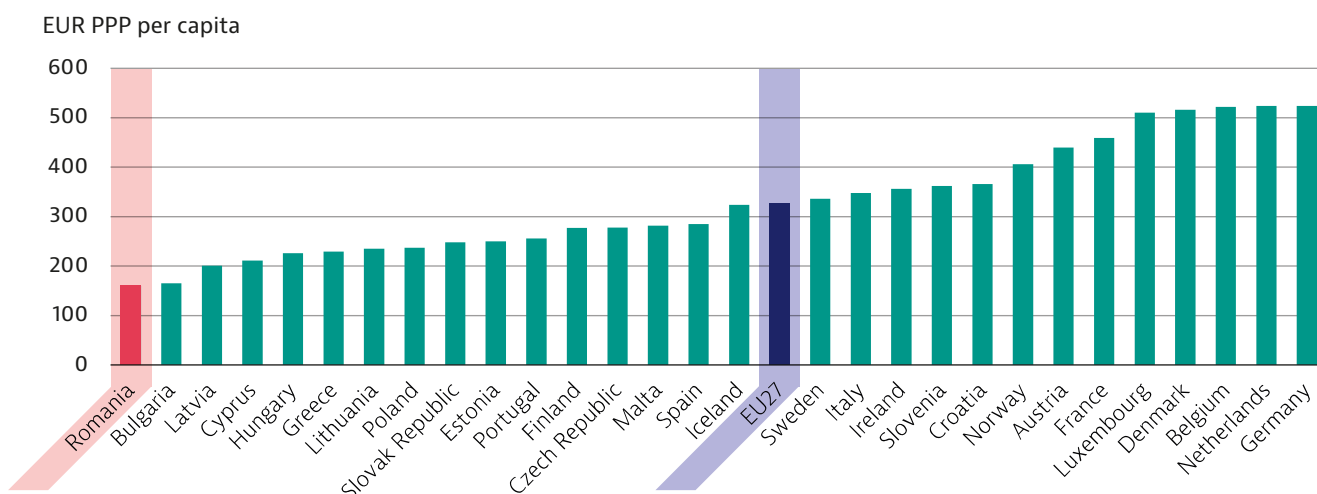


Figure 13. Per capita expenditure on cancer care in Romania is the lowest in the EU



Note: The EU27 average is unweighted (calculated by the OECD).
Source: Hofmarcher et al. (2020).

Financial sustainability of the health system is threatened by increasing costs of new cancer drugs

Cancer drug expenditure is nearly 50 % of direct cancer health expenditure in Romania. The high proportion of cancers diagnosed at advanced stages requires high expenditure on cancer care. Increasingly specific therapies, which are often indicated for small groups of patients, and new innovative cancer drugs put additional strain on cancer care expenditure.

Funds for cancer medicines allocated by the National Health Insurance House increased from EUR 173 million in 2010 to more than EUR 633 million in 2021, mostly driven by increased use of targeted therapies and immunotherapies. To foster financial sustainability in the health system, Romania needs to prioritise access to innovative therapies, while developing quality assurance of cancer care and expanding capacity for early detection and prevention (Box 2).

Box 2. Important investment in cancer prevention and cancer is planned through European funding

The European Regional Development Fund of the Health Programme 2021-2027 addresses the infrastructure of cancer care, aiming to ensure equal access to services of equal quality and safety in all regions of the country and along the continuum of care, as well as delivering timely access to outpatient early detection services.

The oncology institutes and oncology wards will benefit from improved infrastructure for treatment, research and investments in imaging technology, pathology and genetic testing laboratories, radiotherapy and chemotherapy preparation units. Plans are also in place to establish a proton therapy centre. The European Social Fund provides

support for improved screening services for cervical, breast and colorectal cancer, targeting vulnerable groups. Early detection guidelines, patient pathway development and training of health professionals – both medical and non-medical – are planned within the Health Programme 2021-2027.

The structural funds aim to support the oncology institutes to achieve the standards of comprehensive cancer centres. The National Resilience and Recovery Plan will cover investment in 10 mobile units for cervical and breast cancer to serve rural and other hard-to-reach areas, and in digitalisation and reform of the health information system.

5.4 COVID-19 and cancer: building resilience

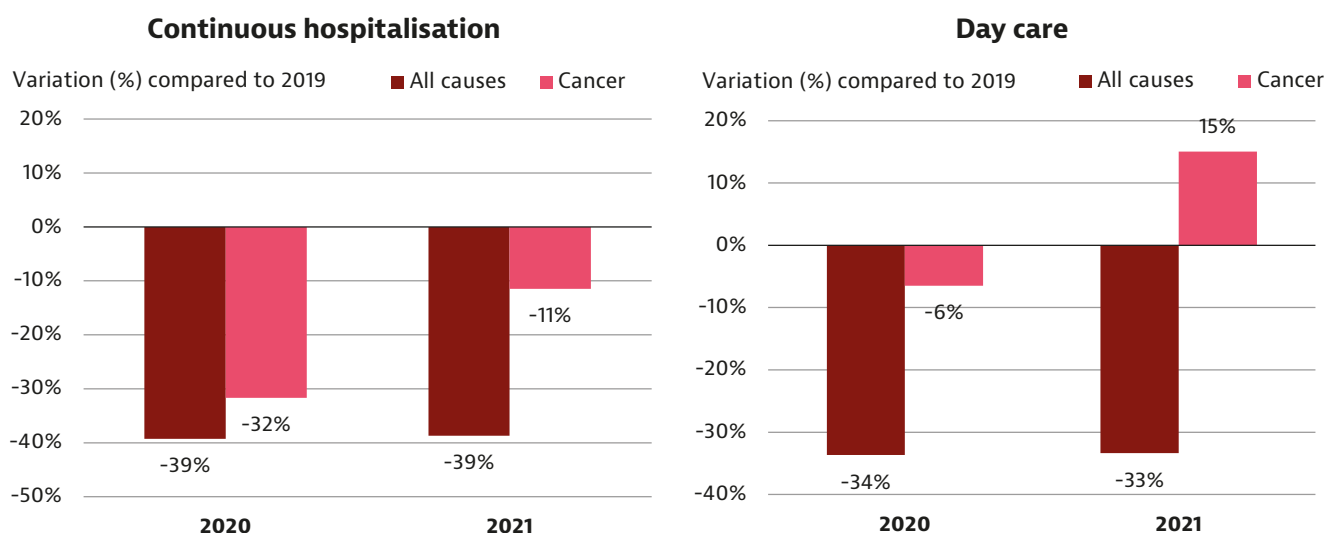
Measures were taken to prioritise access to care for cancer patients

From the start of the pandemic, Romania took a range of measures to maintain access to cancer care and treatment while protecting the most vulnerable population groups from COVID-19. Cancer patients were among the first beneficiaries of free COVID-19 testing and vaccination, and the health authorities enforced the need for continuity of services in oncology centres. The Romanian Society of Oncologists promptly took steps to issue guidance on cancer patients with COVID-19 care, and updated them regularly. Oncologists and cancer patient associations partnered to promote vaccination among cancer patients.

Cancer diagnosis and treatment were delayed by the pandemic

According to the data from the National Institute of Public Health, 4.2 million hospital admissions and 3.2 million hospitalisation days were reported in 2019, of which 7 % of admissions and 18 % of day hospitalisations related to cancer. The COVID-19 pandemic generated a reduction in provision of health services, but this was less marked for cancer than for all causes. Continuous hospitalisation was more affected than day care. Compared to 2019, hospitalisation for cancer fell by 32 % in 2020 and by 11 % in 2021, while day care for cancer fell by 6 % in 2020 and increased by 15 % in 2021, suggesting that the loss of activity has been caught up (Figure 14).

Figure 14. Health service provision during the pandemic was less affected for cancer than other causes



Source: National Institute of Public Health.

This is consistent with a reduction in the number of mastectomies and colon and rectum resections. The reduction in the total number of mastectomies per month was more prominent during the first lock-down (March-May 2020), but surgical activity visibly picked up in 2021. The impact of the pandemic on oncology services and patient outcomes is not yet certain and will continue to yield effects in the future.



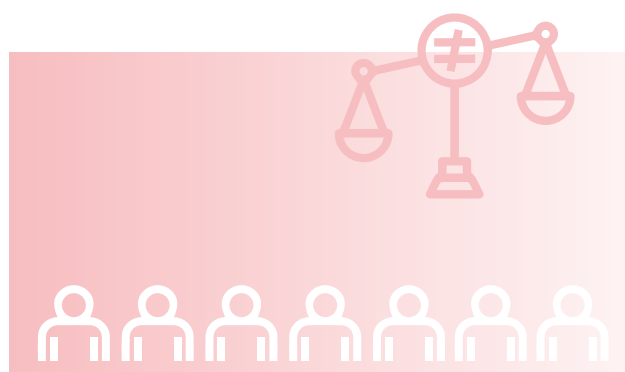
6. Spotlight on inequalities

The gap between cancer mortality rates in Romania and the EU average is increasing, owing to limited progress made in cancer control. This increase is more visible among men and among those aged 15-64 years. Several indicators suggest challenges in cancer care.

- Behavioural risk factors for health have higher prevalence among adults and adolescents in Romania than most EU Member States. People with lower education levels and lower incomes are more likely to be hazardous alcohol drinkers than those with higher education levels and higher incomes.
- Early detection and cancer screening have very low coverage compared to other EU countries. Coverage is lower among populations on lower incomes, with lower education levels and living in rural areas. For example, only 9 % of women aged 50-69 years reported having a mammogram within the past two years, which is the lowest rate across EU countries. Socioeconomic disparities in breast cancer screening are also large, with greater uptake among women on higher (14 %) than lower (4 %) incomes.
- While access to cancer care is free of charge for all citizens, the health system provides only a partial response to patient needs. Financial barriers may be faced at various points of the patient pathway, related to limited availability of services, uneven distribution across the country or lack of continuity between layers of health care providers. Financial challenges are also present in access to diagnostic services for uninsured people.
- Romanian patients have long waits for novel cancer therapies, and the health system pays high prices for cancer drugs. Waiting times to access treatment are not regularly monitored.

While care quality has improved in recent decades, Romania lags behind other EU countries in five-year cancer survival rates. Heterogeneity of clinical practice, reference centres for rare cancers, operationalising of the tumour boards and improving monitoring of care quality remain priorities for action. The lack of systematic collection of data in a national cancer registry makes difficult to evaluate quality, access and performance of services as well as to determine the social and economic gradients.

The new National Health Strategy 2022-2030, the investment tools represented by the Health Programme 2021-2027 and the National Resilience and Recovery Plan are expected to address some of the structural deficits of the Romanian health system – especially in the oncology sector. Plans are in place to improve digitalisation and the health information system, to develop quality assurance mechanisms and to ensure more equitable access to cancer care and prevention in Romania.



References

- Arnold M et al. (2015), *Cancer and obesity: global burden of cancer attributable to excess weight*. Lyon, International Agency for Research on Cancer, <http://gco.iarc.fr/obesity>.
- Boggust M (2017), *Romania: palliative care need assessment*. Bucharest, Ministry of Health, <https://www.ms.ro/wp-content/uploads/2019/01/Palliative-Care-Needs-Assessment.pdf>.
- Diaconescu LV et al. (2021), Psychological variables associated with HPV vaccination intent in Romanian academic settings, *International Journal of Environmental Research and Public Health*, 18(17):8938.
- European Commission (2021), *Europe's Beating Cancer Plan*. Brussels, European Commission, https://ec.europa.eu/info/strategy/priorities-2019-2024/promoting-our-european-way-life/european-health-union/cancer-plan-europe_en.
- Hofmarcher T et al. (2020), The cost of cancer in Europe 2018, *European Journal of Cancer*, 129:41-9.
- IHME (2019), *Global Burden of Disease (GBD)*: <https://www.healthdata.org/gbd/2019>, accessed on 3/11/2022.
- Moye-Holz D, Vogler S (2022), Comparison of prices and affordability of cancer medicines in 16 countries in Europe and Latin America, *Applied Health Economics and Health Policy*, 20:67-77.
- National Health Insurance House (2022), *Order no. 180/2022 on the approval of the technical norms for the implementation of national curative health programmes for 2022 and 2023*. Bucharest, National Health Insurance House.
- National Institute of Public Health, Institute of Oncology Cluj (2020), *Cunostinte, atitudini si perceptii ale femeilor cu privire la screeningul cancerului de col uterin, Sondaj de opinie*, <https://www.potisaprevii.eu/wp-content/uploads/2021/05/Anexa-11-%E2%80%93-Studiul-%E2%80%9ECunostii-inte-atitudini-perceptii-ale-femeilor-cu-privire-la-screeningul-cancerului-de-col.pdf>
- Newton M, Scott K, Troein P (2022), *EFPIA patients W.A.I.T. indicator 2021 survey*, Brussels, European Federation of Pharmaceutical Industries and Associations, https://www.efpia.eu/media/676539/efpia-patient-wait-indicator_update-july-2022_final.pdf.
- OECD (2021), *Preventing harmful alcohol use*, Paris, OECD Publishing, <https://doi.org/10.1787/6e4b4ffb-en>.
- OECD/European Observatory on Health Systems and Policies (2021), *Romania: Country Health Profile 2021*. Paris, OECD Publishing, <https://doi.org/10.1787/74ad9999-en>.
- Rumgay H et al. (2021), Global burden of cancer in 2020 attributable to alcohol consumption: a population-based study, *Lancet Oncology*, 22(8):1071-80.

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
Czech Republic	CZ	Greece	EL	Lithuania	LT	Portugal	PT		

European Cancer Inequalities Registry

Country Cancer Profile 2023

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 Expert Thematic 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 the impact of COVID-19 on cancer care.

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