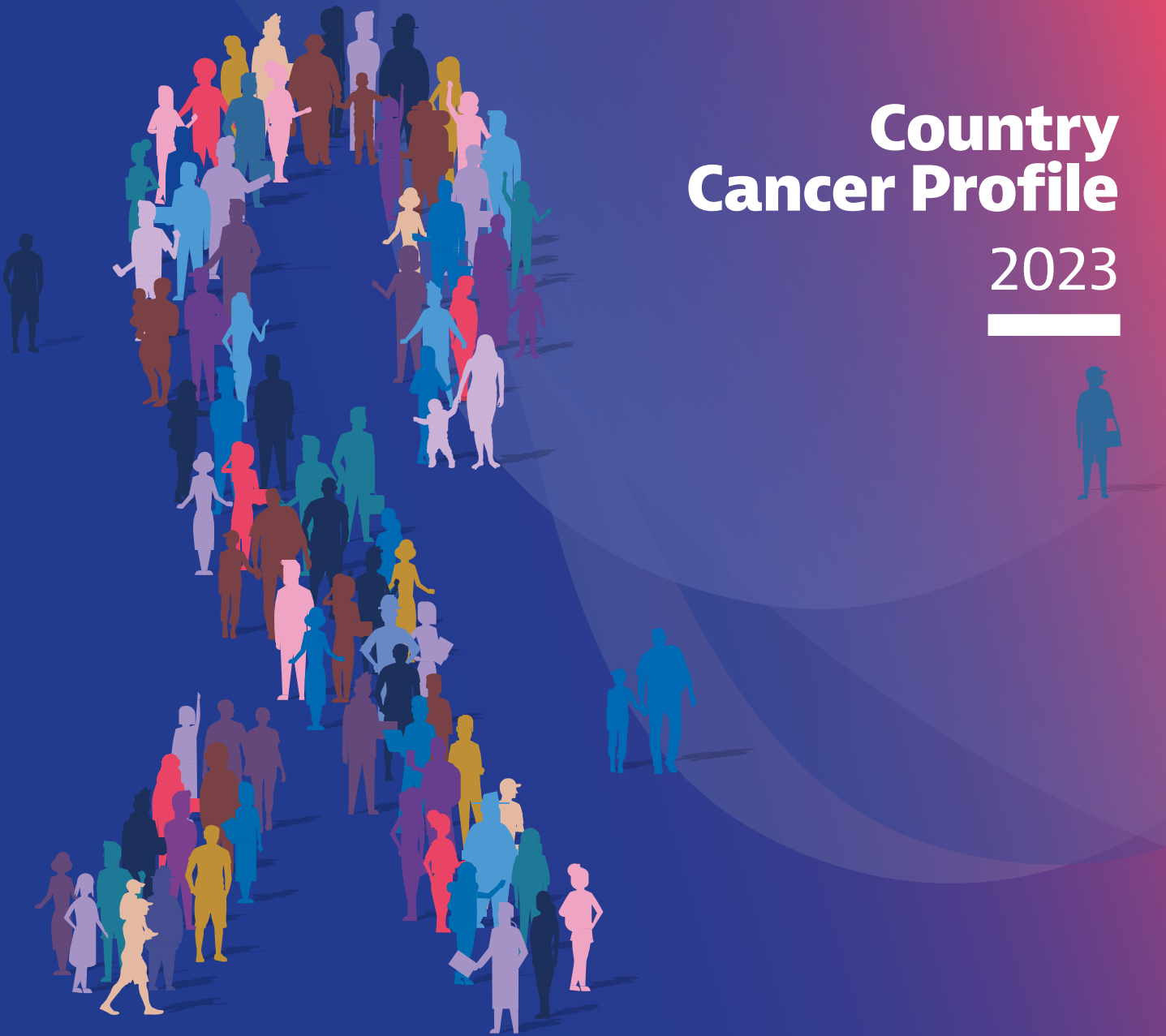




SLOVAK REPUBLIC

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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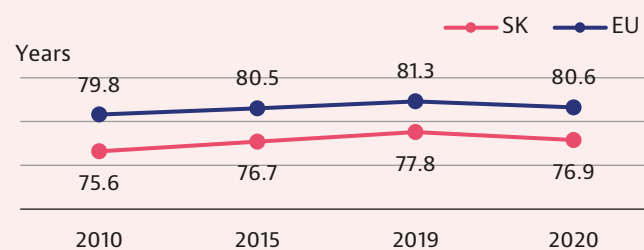
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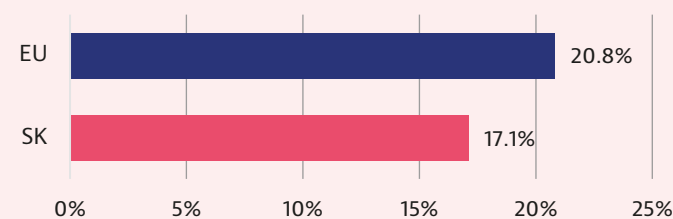
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Summary of the main characteristics of the health system

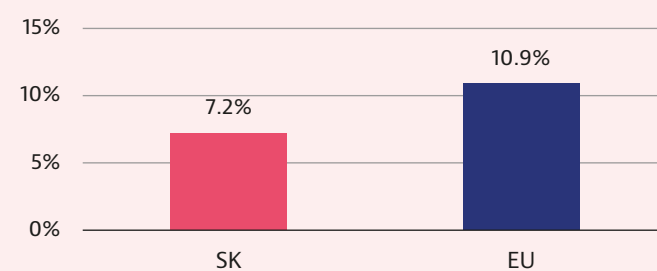
LIFE EXPECTANCY AT BIRTH (YEARS)



SHARE OF POPULATION AGED 65 AND OVER (2021)

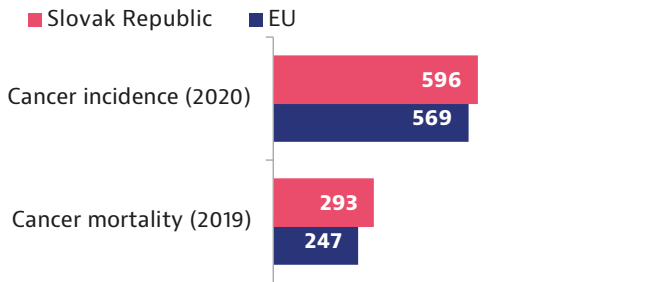


HEALTH EXPENDITURE AS A % OF GDP (2020)

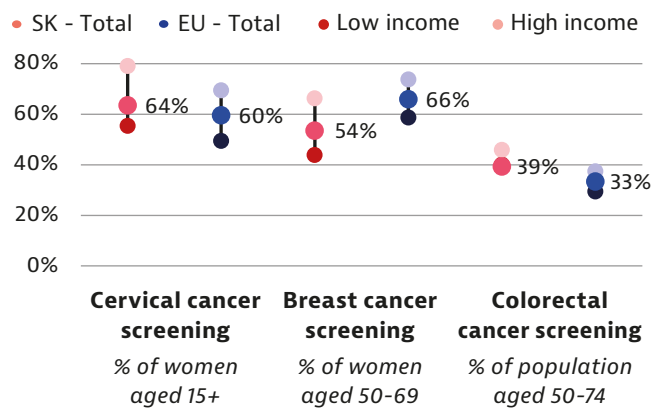
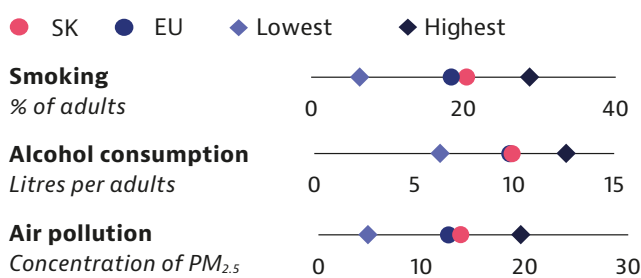


Source: Eurostat Database.

1. Highlights



Age-standardised rate per 100 000 population



Cancer in Slovak Republic

Estimated cancer incidence rates in Slovak Republic are higher than the EU averages, particularly for prostate, breast, colorectal and lung cancers. Cancer mortality rates are also among the highest in the EU, and particularly for colorectal and cervical cancers. To tackle the high burden of cancer, Slovak Republic introduced the National Oncology Programme in 2018.

Risk factors and prevention policies

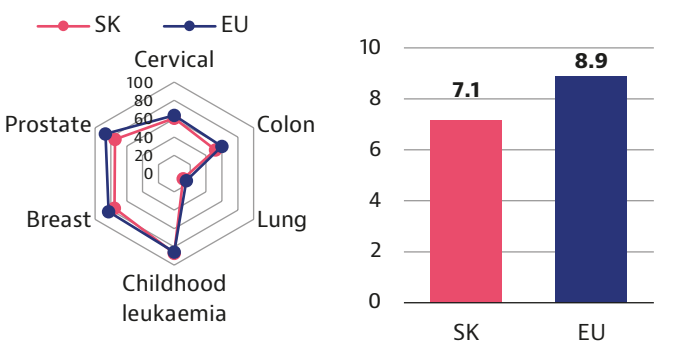
Smoking, obesity, and overweight are growing concerns in Slovak Republic, with higher prevalence than the EU average. Alcohol consumption also remains slightly higher than in other EU countries, while premature deaths attributable to air pollution are among the highest in the EU.

Early detection

Population-based screening programmes for breast, cervical and colorectal cancers were introduced in Slovak Republic from 2019. Cervical and colorectal cancer screening rates are higher than the EU averages, but inequalities by socioeconomic background persist. Slovak Republic has prostate cancer screening as part of preventive check-ups, and plans to introduce a pilot lung cancer screening project.

Cancer care performance

Barriers to accessing cancer care in Slovak Republic include financial barriers for those on low incomes and geographical barriers for people living in regions with a limited supply of health care services and workforce shortages. Slovak Republic also lags behind other EU countries on quality of cancer care, with lower five-year survival rates than in the EU for cancer patients diagnosed between 2010-2014. More recently, quality assurance mechanisms for cancer screening and care were strengthened to monitor access to care, reduce health inequalities and improve care quality.



Five-year net survival rate by cancer site, 2010-14

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

2. Cancer in Slovak Republic

Cancer incidence rates are high, particularly for prostate, breast, colorectal and lung cancers

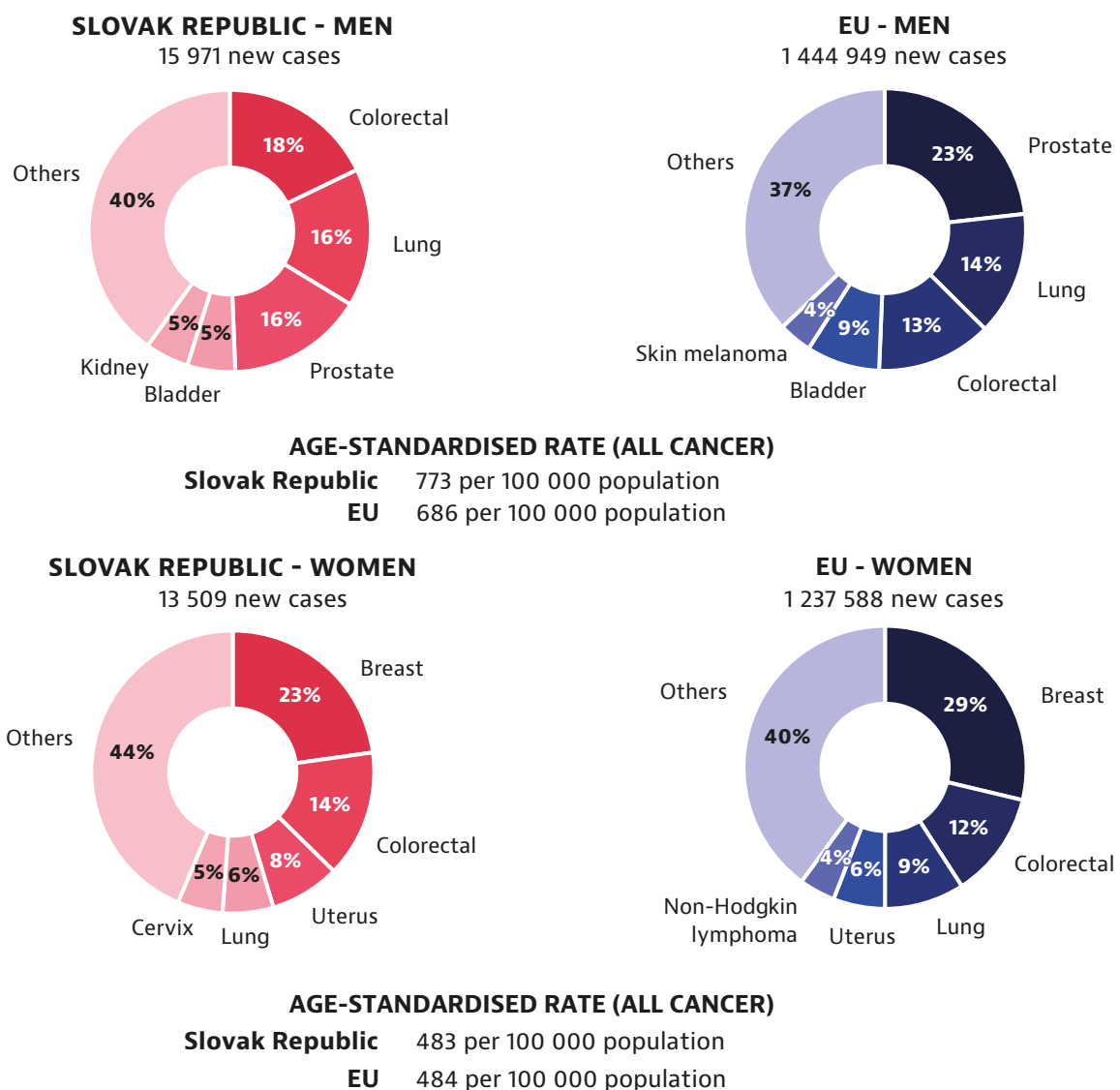
According to European Cancer Information System (ECIS) of the Joint Research Centre based on incidence trends from pre-pandemic years, approximately 29 500 new cases of cancer were expected in Slovak Republic in 2020 (Figure 1). The age-standardised incidence rate was expected to be 596 new cancer cases per 100 000 population,

which is 5 % higher than the EU average. For paediatric cancer, the estimated age-standardised incidence rate in children under 15 years was 19.2 per 100 000, which is higher than the EU average (15.4 per 100 000 population).

Cancers with the highest expected numbers of new cases were prostate (133 new cases per 100 000 men), breast (109 new cases per 100 000 women),

Figure 1. Cancer incidence is particularly high among men in Slovak Republic in 2020

Distribution of cancer incidence by sex in Slovak Republic 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.

colorectal (100 new cases per 100 000 population) and lung (66 new cases per 100 000) cancers. In 2020, gastric (stomach) cancer was expected to constitute 4.5 % of new cancer cases in men and 3.6 % in women, and skin melanoma was expected to constitute 2.8 % of new cancer cases in both genders in 2020. In 2013, the estimated number of new rare cancer cases in Slovak Republic was 5 855.

Incidence rates in Slovak Republic are expected to be significantly higher than the EU averages for some cancers. In 2020, the rates were expected to be almost 90 % higher than the EU average for cervical cancer (24 vs. 13 per 100 000 women), almost 70 % higher for gastric (stomach) cancer (26 vs. 16 per 100 000 population) and more than 40 % higher for kidney cancer (26 vs. 18 per 100 000 population). For colorectal cancer, the rate was expected to be more than 50 % higher than the EU average among men (141 vs. 92 per 100 000 men) and more than 25 % higher among women (71 vs. 56 per 100 000 women); the rate among men was also the highest in the EU.

Cancer incidence is high among men, and the gender difference is large for lung and liver cancers

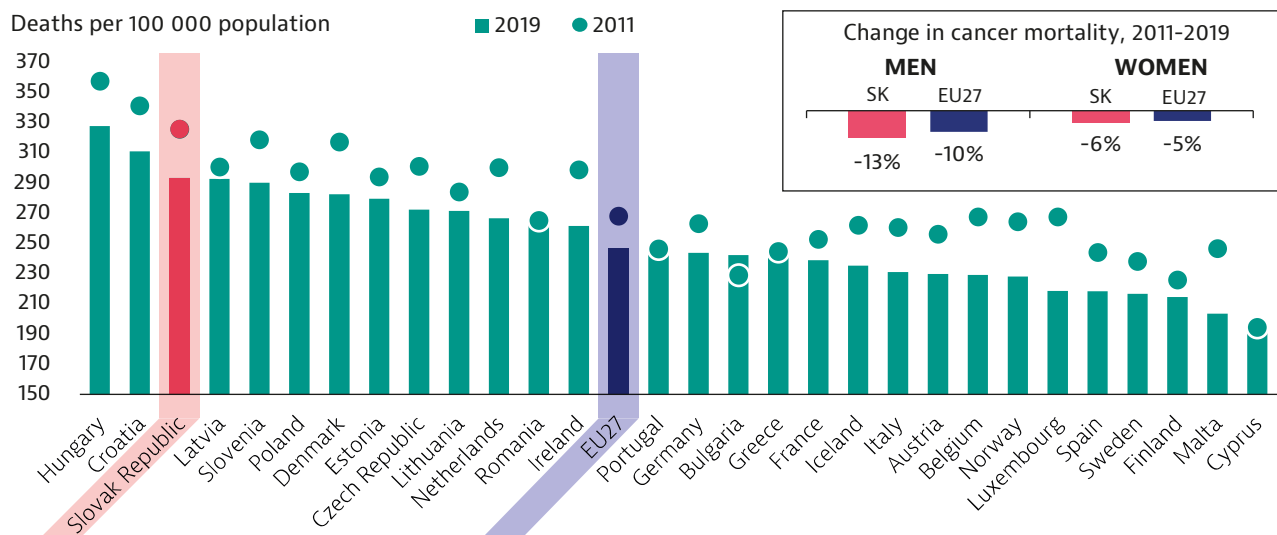
Estimated cancer incidence rates are significantly higher among men than women. In 2020, the

incidence rate among men was expected to be almost 15 % higher than the EU average (773 vs. 685 per 100 000 men), while the rate among women was expected to be similar to the EU average (483 vs. 484 per 100 000 women). The incidence rate of lung cancer in Slovak Republic was more than four times higher among men (120 per 100 000 men) than women (28 per 100 000 women), and it was more than three times higher for liver cancer among men (23 per 100 000 men) than among women (7 per 100 000 women).

Cancer mortality is the third highest in the EU, with regional and socioeconomic inequalities

Between 2011 and 2019, the cancer mortality rate decreased by 10 % in Slovak Republic, which is faster than the EU average of 8 % (Figure 2). It was still high in 2019, however: almost one in four deaths in Slovak Republic were due to cancer, and the overall rate was the third highest in the EU (293 vs. 247 per 100 000 population). The cancer mortality rate among men was more than 25 % higher than the EU average (414 vs. 328 per 100 000 men), and the rate among women was almost 15 % higher than the EU average (218 vs. 191 per 100 000 women).

Figure 2. Despite a large decline in recent years, the cancer mortality rate remains very high

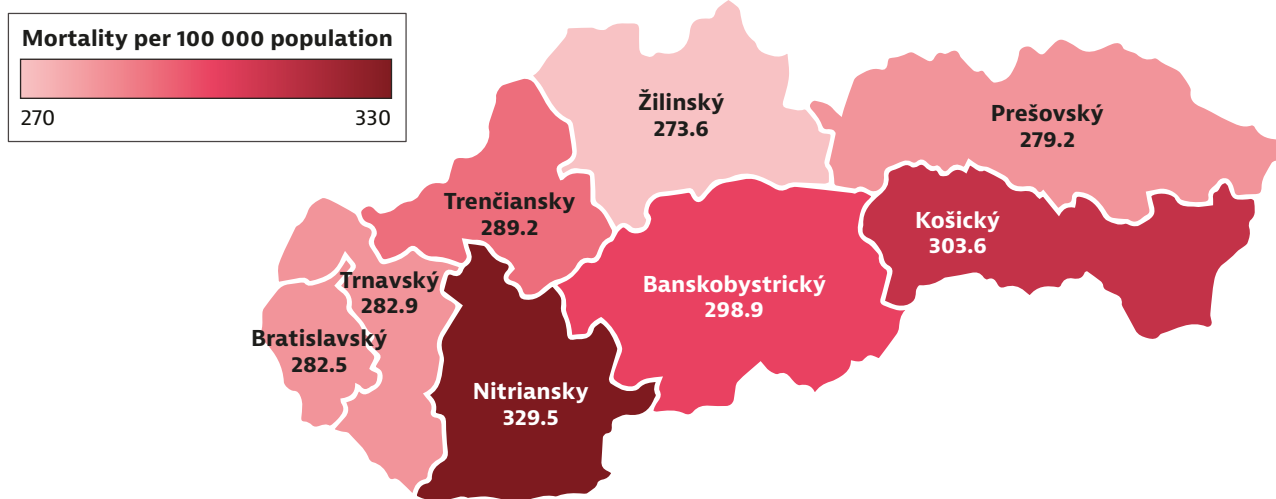


Note: The EU average is weighted (calculated by Eurostat for 2011-2017 and by the OECD for 2018-2019). Source: Eurostat Database.

Cancer mortality rates vary widely by region and socioeconomic background. Cancer mortality in the southern region of Nitriansky was 20 % higher than in the northern region of Žilinský in 2020 (Figure 3). Although more recent data are not available, in 2013, cancer mortality among people aged 25-64 years was almost five times higher among

men with lower than higher education levels. The education gap in cancer mortality among women was smaller (Murtin and Lübker, 2022).

Figure 3. Cancer mortality rates vary widely across regions in Slovak Republic



Note: Age-standardised mortality for all cancer causes per 100 000 population, both genders. Data refer to 2020. Source: National Health Information Centre (2022).

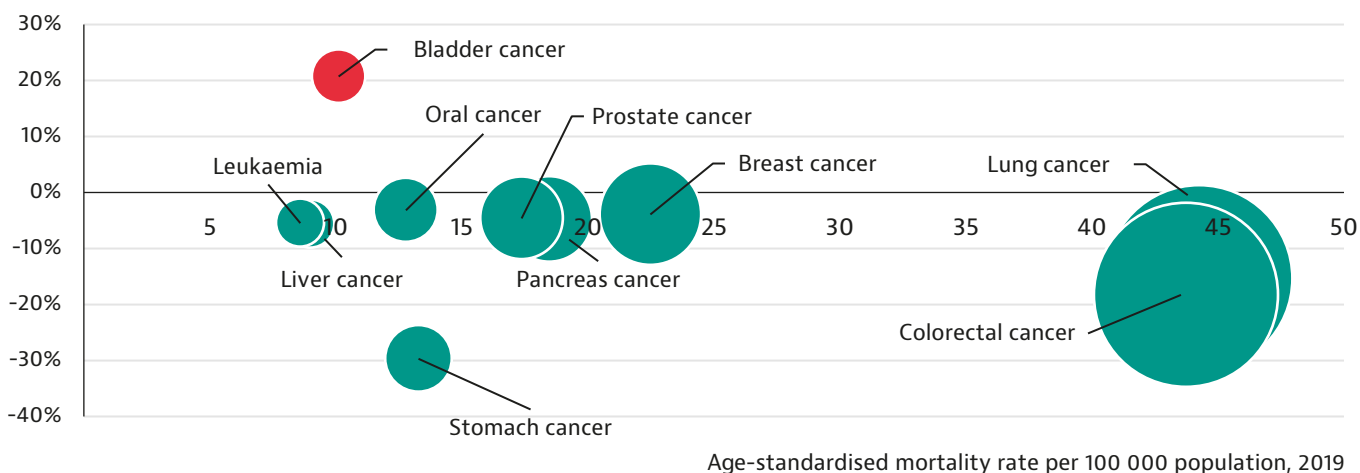
Mortality rates for colorectal, oral and cervical cancers are higher than the EU averages

Although mortality rates have decreased for most cancers in recent years, colorectal, lung, breast, pancreas and prostate cancers remain the main causes of cancer deaths in Slovak Republic

(Figure 4). Between 2011 and 2019, mortality rates decreased for most major cancer types (particularly for gastric (stomach), lung and colorectal cancer), except for bladder cancer, for which mortality grew over the same period.

Figure 4. Mortality rates for major cancers decreased in varying degrees in Slovak Republic

Change in cancer mortality, 2011-2019 (or nearest year)



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.

The mortality rates for colorectal, oral and cervical cancers were substantially higher than in most EU countries. In 2019, the mortality rate for colorectal cancer was more than 50 % higher than the EU average (44 vs. 29 per 100 000 population), and the rate for men was particularly high (68 per 100 000 men) and the third highest in the EU. The mortality rate for oral cancer was also high because of the

rate among men, which was the second highest in the EU and over twice the EU average (25 vs. 10 per 100 000 men). Furthermore, the mortality rate for cervical cancer was almost twice as high as the EU average (7 vs. 4 per 100 000 women) even though the screening rate is relatively high (see Section 4). In 2019, gastric (stomach) cancer accounted for an overall mortality rate of 13.3 per 100 000

population (higher than the EU average of 10.3 per 100 000 population), and skin melanoma accounted for an overall mortality rate of 4.2 per 100 000 population (also higher than the EU average of 3.1 per 100 000 population).

Between 2000 and 2014, potential years of life lost due to malignant neoplasms saw a relative decrease of 22 %, to account for 1 840 years of life lost among 100 000 people aged up to 75 years in 2014. The relative decrease among men (28 %) was double that among women, with 2 294 and 1 447 years of life lost in 2014, respectively.

Given the high burden of cancer, Slovak Republic introduced the National Oncology Programme in 2018

The National Oncology Programme (NOP), introduced in 2018, was developed by the Ministry

of Health and further updated in Action Plans for 2021-2025 in co-operation with the Chief Expert in Clinical Oncology of the Ministry of Health, the President of the Slovak Oncology Society, and representatives of the National Oncology Institute (NOI) and the National Centre for Health Information. The Action Plans for 2021-2025 lay out details for implementation of the NOP, which aims to reduce cancer incidence and mortality and to improve cancer patients' quality of life. The Action Plans focus on primary and secondary prevention, diagnosis and treatment, research and development, and health data and information. These priorities broadly align with the Europe's Beating Cancer Plan (European Commission, 2021).

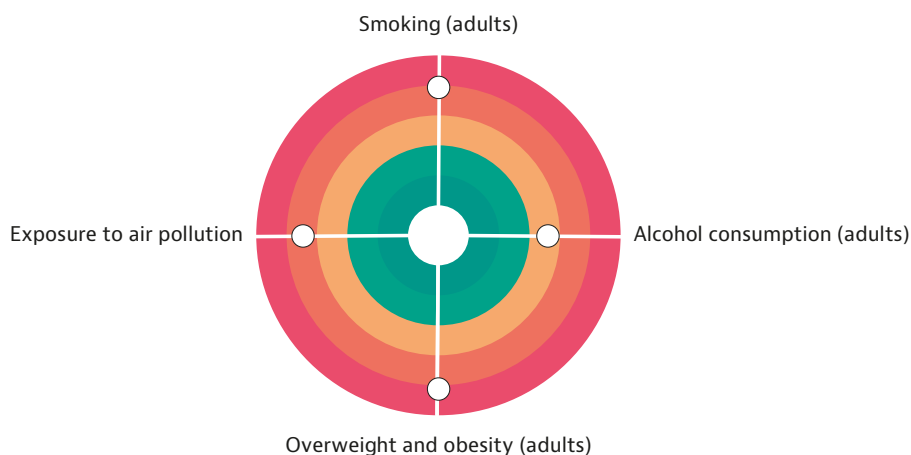
3. Risk factors and prevention policies

The Primary Prevention Action Plan will allocate additional resources to health promotion

Slovak Republic decreased investments in preventive care from 4.7 % of health spending in 2010 to 1.0 % in 2020, which is much lower than the EU average of 3.4 %. As prevention and health promotion are recognised as effective in reducing the burden of cancer, the country developed the Primary Prevention Action Plan as part of the NOP

Action Plans for 2021-2025, and plans to annually invest an additional EUR 320 000 in primary prevention of cancer up to 2025. However, this is equivalent to less than a 0.5 % increase from the spending level in 2020, suggesting that greater investment and implementation of effective prevention policies are needed to reduce the prevalence of risk factors for cancers which are more prevalent in Slovak Republic than in other EU countries (Figure 5).

Figure 5. Overweight and smoking are major public health concerns in Slovak Republic



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).

Obesity is a growing concern in Slovak Republic, and prevalence of overweight is above the EU average

Slovak Republic introduced the National Action Plan on Obesity Prevention for 2015-2025, but between 2014 and 2019, the share of overweight and obese people aged 15 and over in Slovak Republic increased by 11 % – faster than the EU average of 6 % – and overweight and obesity rates also increased substantially among adolescents. In 2019, 59 % of people aged 15 years and over were overweight, compared to the EU average of 53 %. Overweight is particularly prevalent among people aged 65 years and over, as 76 % of people in this age group are overweight, which is above the EU average (63 %) and the highest share among EU countries.

To address unhealthy eating habits among the Slovak population, several policy measures, such as controlling marketing of unhealthy food and drinks to children, were introduced in 2016 and 2018, and the Food and Nutrition Action Plan 2017-2025 involving Ministries of Health, Culture, Labour, Social Affairs and Family and Agriculture and Rural Development, was implemented. It aims at developing tools to support healthy eating targeted at vulnerable populations, introducing cross-sectoral actions, and ensuring monitoring and evaluation of actions.

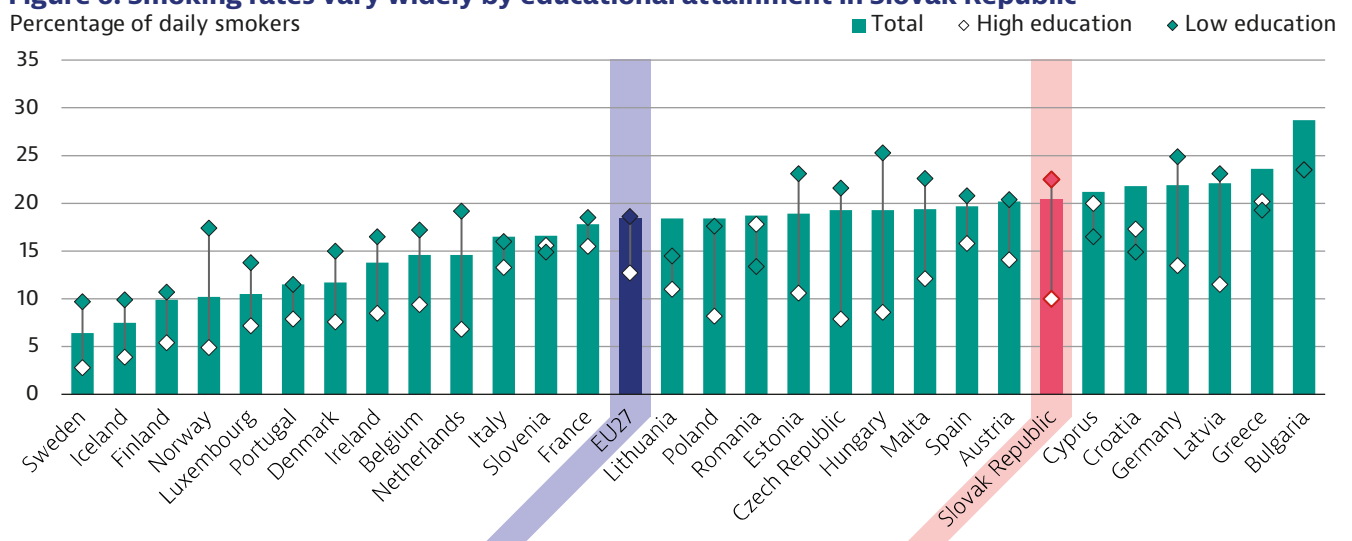
Nonetheless, the prevalence of poor eating habits increased between 2014 and 2019. Around 47 % of the adult population reported eating no fruit per day in 2019 (compared to an EU average of 44 %), and a higher proportion (53 %) did not consume

vegetables daily (compared to the EU average of 49 %). Eating habits were particularly poor among people aged 65 years and over, and those with lower education levels. Physical inactivity was also particularly high among people aged 65 years and over, at 88 %, compared to the EU average of 78 %.

Tobacco consumption remains high, especially among those with lower education levels

Although smoking rates have decreased more pronouncedly than in most EU countries in recent years, prevalence of daily smoking in 2019 was 20 % among people aged 15 years and over, which is higher than the EU average of 18 %. The education gap in smoking was the third highest in the EU: smoking rates were more than twice as high among those with lower (23 %) than higher (10 %) education levels (Figure 6). A large gender gap also persists: more than a quarter (26 %) of Slovak men reported smoking daily compared to one in six women (15 %). With the aim of reducing this high prevalence of smoking, taxes on tobacco products were increased in 2021 and 2022, and are scheduled to increase further in 2023. Unlike tobacco products, financial incentives have not been introduced to reduce the use of vaping products, although the share of people aged 15 years and over who use these products regularly has increased to 1.2 % in 2019, which is still lower than the EU average of 2.2 %.

Figure 6. Smoking rates vary widely by educational attainment in Slovak Republic



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

Alcohol consumption is above the EU average, and hazardous drinking is higher among men than women

Over the two past decades, alcohol consumption decreased slightly more slowly than in most EU countries. In 2020, it was an average of 9.9 litres of pure alcohol on average per year per person aged 15 years and over – slightly higher than the EU average of 9.8 litres. Although hazardous drinking is less common in Slovak Republic than in most other EU countries, the gender difference is marked, at 1.6 % among men, compared to 0.4 % among women. This corresponds to significantly higher incidence of liver cancer among men than women.

Human papillomavirus vaccination started in 2016, but coverage is still very low

Since 2016, HPV vaccination has been given to girls at age 12-13 years free of charge. In 2022, the target group was extended to boys aged 12-13 years with full gender-neutral coverage for a nonavalent HPV vaccine. The vaccine can be provided to children in other age groups, but the full cost needs to be paid out-of-pocket. However, for older girls and boys, health insurance companies cover the vaccine cost in part (the exact cost-sharing arrangement depends on the health insurance company).

The NOP Action Plans 2021-2025 stress the need to increase vaccination uptake as in early 2021, it was estimated approximately 23 % of girls and 1 % of boys aged 12 years were vaccinated. A pilot programme is planned to build awareness

by including HPV vaccination information in the curriculum in primary and secondary schools. The Ministry of Health, Ministry of Education, NOI, professionals and patient organisations are collaborating to develop strategies to increase uptake.

Premature deaths attributable to air pollution in Slovak Republic are high

Air pollution in Slovak Republic is substantial, and is a major cause of preventable mortality. Overall concentration of PM₁₀ (21 µg/m³)¹ in 2019 was similar to the EU average (20.5 µg/m³), but the concentration of PM_{2.5}, which can have a more serious health impact, was 13.8 µg/m³, which is higher than the EU average of 12.6 µg/m³. Premature deaths attributable to air pollution in 2019 were 63.6 per 100 000 population – among the highest in the EU.

To reduce rates of risk factors for cancer such as smoking, alcohol consumption and physical inactivity, public health offices at the national and regional levels have been funded since 2022 to undertake primary prevention activities as part of the NOP Action Plans 2021-2025, together with the Ministries of Health, Environment, Education and Science, Agriculture and Rural Development, and the NOI. Non-governmental organisations also play a significant role in cancer primary prevention in Slovak Republic. However, despite high burden, no particular activities are planned in the area of air pollution.

4. Early detection

Population-based screening programmes for breast, cervical and colorectal cancer started recently

Opportunistic breast, cervical and colorectal cancer screening are available in Slovak Republic, but population-based screening programmes (screening offered to a specific at-risk target population) were implemented recently to increase uptake and improve cancer outcomes.

The breast cancer screening programme started in 2019, providing free mammograms to women aged 50-69 years every two years. Women can also receive free mammograms from the age of 40 as part of regular routine check-ups. In 2021, mammograms were provided by radiologists at 19 certified and 45 non-certified mammography centres.

¹ Particulate matter (PM) is classified according to size: PM₁₀ refers to particles less than 10 micrometres in diameter; PM_{2.5} to particles less than 2.5 micrometres in diameter.

The cervical cancer screening programme started in July 2021, and women aged 23-65 years were invited to have a smear test by health insurance companies. Invitations were sent only to the insured women in the target age group who had not had a regular gynaecological check-up or opportunistic screening in the last two years. The frequency and upper age limit of the screening depends on the test result. The first two examinations are given a year apart; if both results are negative, the following examinations continue at three-year intervals. If the three latest smear test results at three-year intervals are negative and a high-risk lesion is not detected in the cervical area, cervical cancer screening stops at the age of 65 years. Testing is provided free of charge.

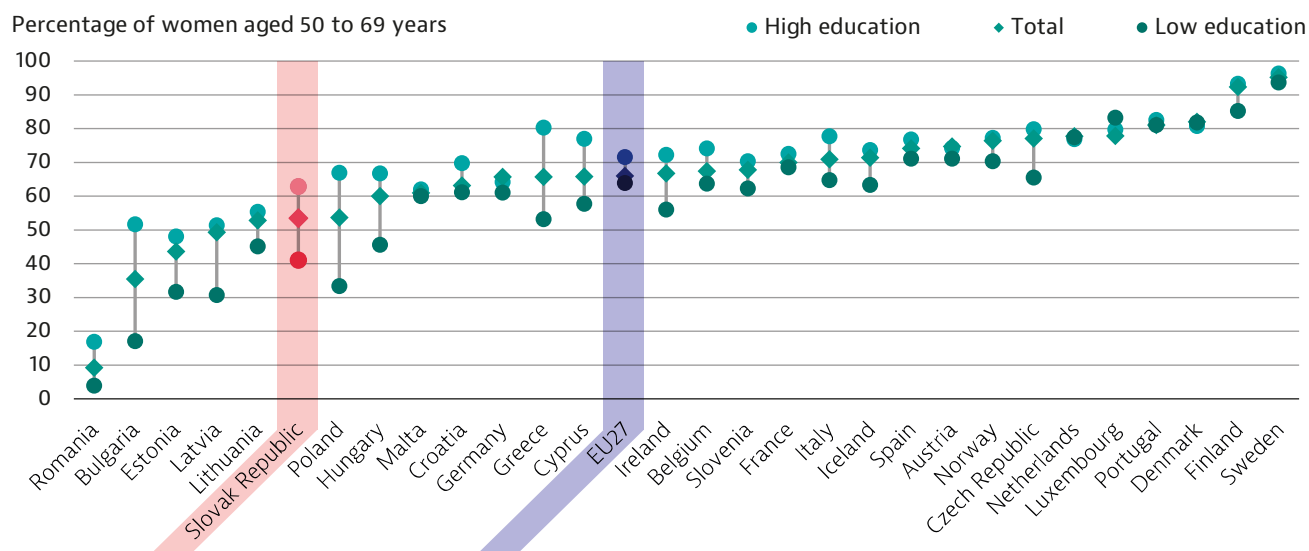
Colorectal cancer screening has been available as part of regular preventive check-ups provided by general practitioners, but the population-based colorectal cancer screening programme started in September 2021, targeting people aged 50-75 years every two years. As part of the programme, health insurance companies send screening invitations with a faecal occult blood test (FOBT) kit to insured people who have not had a routine check-up or opportunistic screening in the last two years, or who have not undergone a colonoscopy exam in the

last 10 years. Colonoscopy is also provided free of charge every 10 years to people aged 50 years and over. It is the primary screening method for people at high risk and provided to them at intervals defined in Slovak guidelines.

Breast cancer screening participation rate is lower than the EU average

According to the EHIS, in 2019, 54 % of women aged 50-69 years in Slovak Republic reported having had a mammogram in the past two years, which is lower than the EU average of 66 %. The screening participation rate was generally lower among more vulnerable population groups: the rate was 63 % among those with higher education levels (vs. the EU average of 72 %), but significantly lower at 41 % among those with lower education levels (vs. the EU average of 64 %), resulting in a wide education gap (Figure 7). The difference was also large by income levels, at 44 % among those on lower incomes, compared to 66 % among those on higher incomes. The geographical difference in mammogram rates at certified centres was 17 percentage points between the regions with the lowest and highest rates, with higher rates in western regions.

Figure 7. Breast cancer screening participation rate in Slovak Republic is lower among those with lower education levels



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.

Cervical cancer screening participation rate is higher than the EU average, but the education gap is large

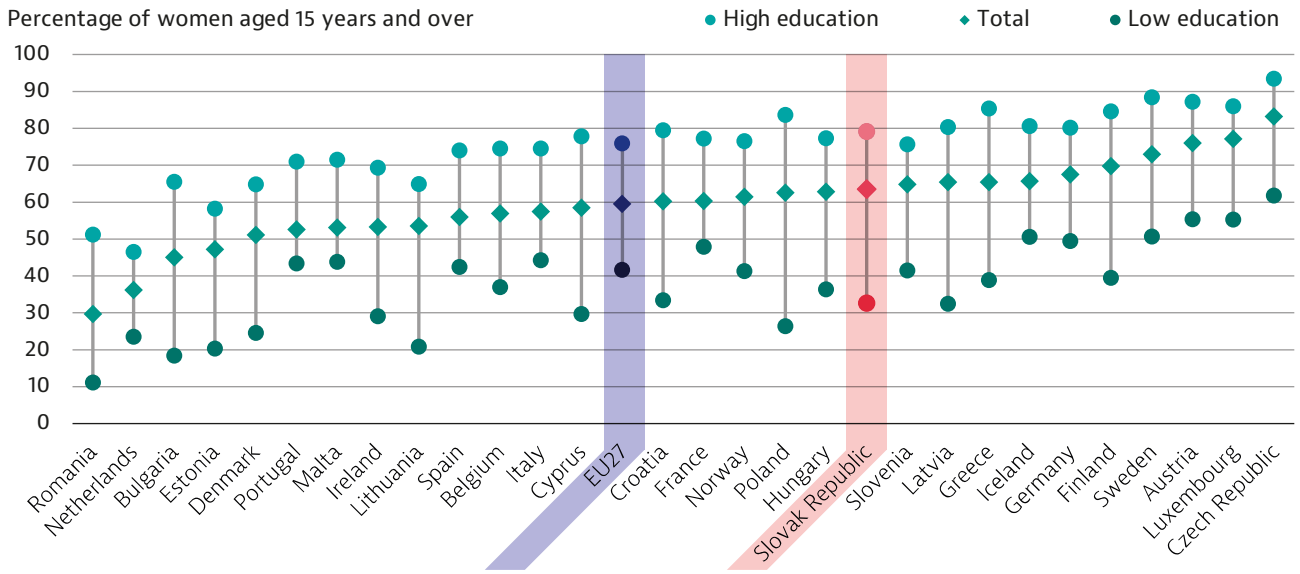
According to the EHIS, in 2019, 64 % of women aged 15 years and over reported having had cervical cancer screening in the past three years, which

was higher than the EU average of 60 %. Similarly to breast cancer screening, compared to the EU average the cervical cancer screening participation rate was low among those with lower education levels (33 % in Slovak Republic vs. 42 % across the EU). The differences by education (47 percentage

points in Slovak Republic vs. 34 percentage points across the EU) and by income (24 percentage points in Slovak Republic vs. 20 percentage points across the EU) were wider in Slovak Republic than in most EU countries (Figure 8), suggesting that free

screening does not necessarily ensure accessibility. To tackle relatively high incidence and mortality rates for cervical cancer, human papillomavirus (HPV) vaccination started in Slovak Republic in 2016 (see Section 3).

Figure 8. Cervical cancer screening participation rate is low among those with lower education levels



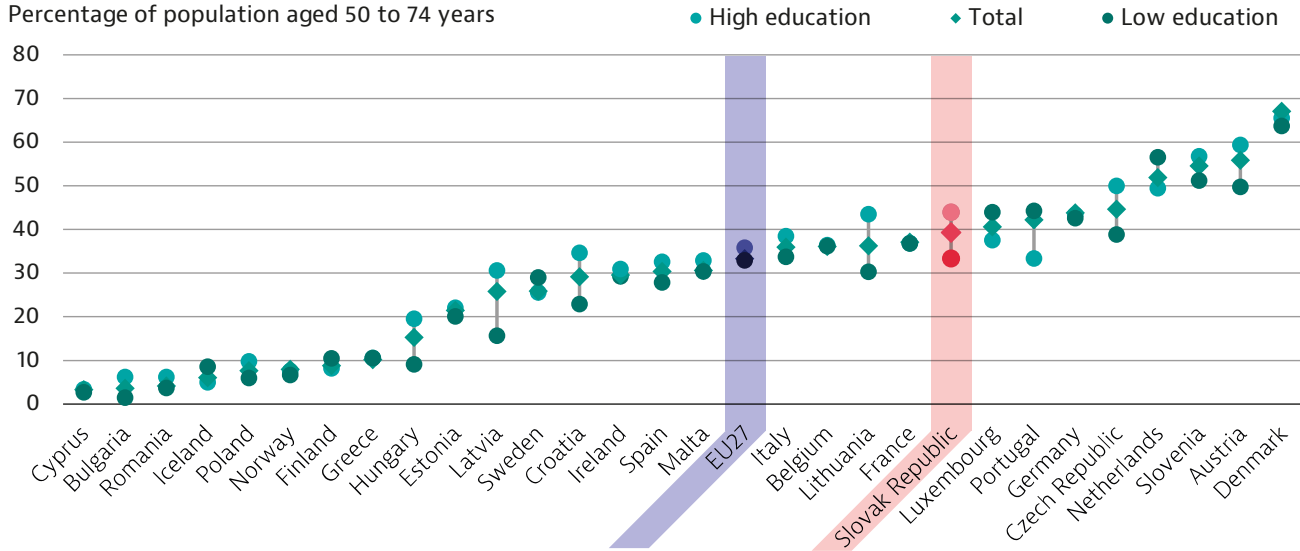
Note: The EU average is weighted (calculated by Eurostat). The figure reports the percentage of women aged 15 years and over who reported having a cervical smear test in the past three years. Source: Eurostat Database (EHIS). Data refer to 2019.

Colorectal cancer screening participation rate is higher than the EU average

In 2019, 39 % of people aged 50-74 years reported having had colorectal cancer screening in the past two years, which was higher than the EU average of 33 %. The screening rate was lower among those with lower (33 %) than higher (44 %) education levels (Figure 9). The same disparity was

seen between those on lower (40 %) and higher (46 %) incomes. The gender difference was slightly larger in Slovak Republic (5 percentage points) than the EU average (less than 1 percentage point). Slovak Republic also provides free prostate cancer screening to at-risk men, and plans to undertake a pilot lung cancer screening project (Box 1).

Figure 9. Colorectal cancer screening participation rate is higher among people with higher education levels



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.

Box 1. Prostate cancer screening is free, and a pilot lung cancer screening project is planned

Prostate cancer screening is available free of charge as part of preventive check-ups for men aged 50 years and over every three years. Men at high risk based on prostate specific antigen (PSA) values and family history can undergo screening from the age of 40, and at higher frequency.

A working group on lung cancer screening was established in 2021, and guidelines were developed. In 2023, a pilot lung cancer screening project is expected to start in several hospitals, following which an evaluation will be conducted to consider further rollout of the programme.

Slovak Republic is investing to improve screening uptake

To increase awareness of cancer screening, Slovak Republic's Ministry of Health has allocated additional funding for conferences, educational programmes and education materials for professionals and citizens in 2021-2025 (EUR 20 000 per year). The Ministry and NOI, in collaboration with an expert working group and patient organisations, developed media campaigns to increase uptake of cervical cancer screening. As part of the NOP Action Plans 2021-2025, an additional budget of EUR 70 000 per year is allocated to improve uptake of screening among marginalised population groups in 2021-2024.

Current cancer screening programmes are under review

Since 2021, Slovak Republic has undertaken a comprehensive assessment of cancer screening programmes. This has involved all relevant stakeholders including the Ministry of Health, NOI, National Health Information Centre, health insurance companies, professional medical societies, Public Health Authority and patient organisations, with the aim of increasing cancer screening uptake and improving quality. Based on the assessment, changes in legislation, funding, payment methods, data infrastructure, and monitoring and evaluation of screening programmes are planned. To improve the quality of cancer screening, Slovak Republic plans to improve clinical processes, education, certification, data use and reporting.

5. Cancer care performance

5.1 Accessibility

Financial barriers to access cancer care exist among groups on lower incomes

The Slovak Republic population is covered by social health insurance (SHI). Slovak Republic's SHI is provided by three health insurance companies, the largest of which is state-owned. SHI is linked to employment, and the state covers economically inactive population groups such as children and retired and unemployed people through subsidies. No user fees are charged for primary care, specialist outpatient care and inpatient care. However, providers are able to charge fees related to care such as air-conditioning in the waiting room, administrative tasks and printed documents; these contribute to out-of-pocket payments. Copayments for pharmaceuticals including cancer drugs and medical devices are also required, but they are fully or partially reimbursed for

pensioners and people with disability. As of 2022, no income-based exemptions are available to lower financial barriers for people on lower incomes, and no subsidies are in place to cover transportation costs for those seeking cancer care (Smatana et al., 2016; OECD/European Observatory on Health Systems and Policies, 2021).

Cancer care is delivered mainly in specialised oncology institutes, located in two regions

Cancer care in Slovak Republic is provided at three oncology institutes, 13 hospitals and 51 outpatient facilities. Two hospitals also have a department specialised in lung cancer (NOI, 2020). Patients can receive diagnosis and treatment in any facility of their choice, but some innovative treatment is available only at selected oncology facilities.

The three oncology institutes serve as consulting centres for other institutions providing cancer care, but this coordination is not well defined. One

of the oncology institutes is located in Košice in the eastern part of the country; the other two are located in the capital, Bratislava, in the western part. One of the two is the National Cancer Institute (NCI), the national reference centre and the only comprehensive cancer centre that provides care throughout the patient pathway (including follow-up care for patients with a history of cancer and palliative care) and has a department dedicated to research. The NOP aims to bring the other two oncology institutes up to the level of comprehensive cancer centres by strengthening their diagnostic and treatment capacities to improve access to a broad range of high-quality cancer care, including palliative care, among the population.

Ensuring geographical access is a challenge for various types of cancer care, including palliative care and follow-up care for patients with a history of cancer. Alongside the NCI, only four inpatient facilities provide palliative care in Slovak Republic, and all are located in the western part of the country. Palliative care is also provided in 12 hospices (at least one in all regions except one) and in nine mobile hospices in five of the eight regions. The number of available palliative care beds was 270 in 2021, which is less than half of the 550 beds recommended by the European Association for Palliative Care based on the population size. Because of low rates of reimbursement provided by SHI, cost-sharing is high, further limiting access to palliative care and potentially increasing inequalities in access (NOI, 2022a). Reforms are in progress to improve access to palliative care across

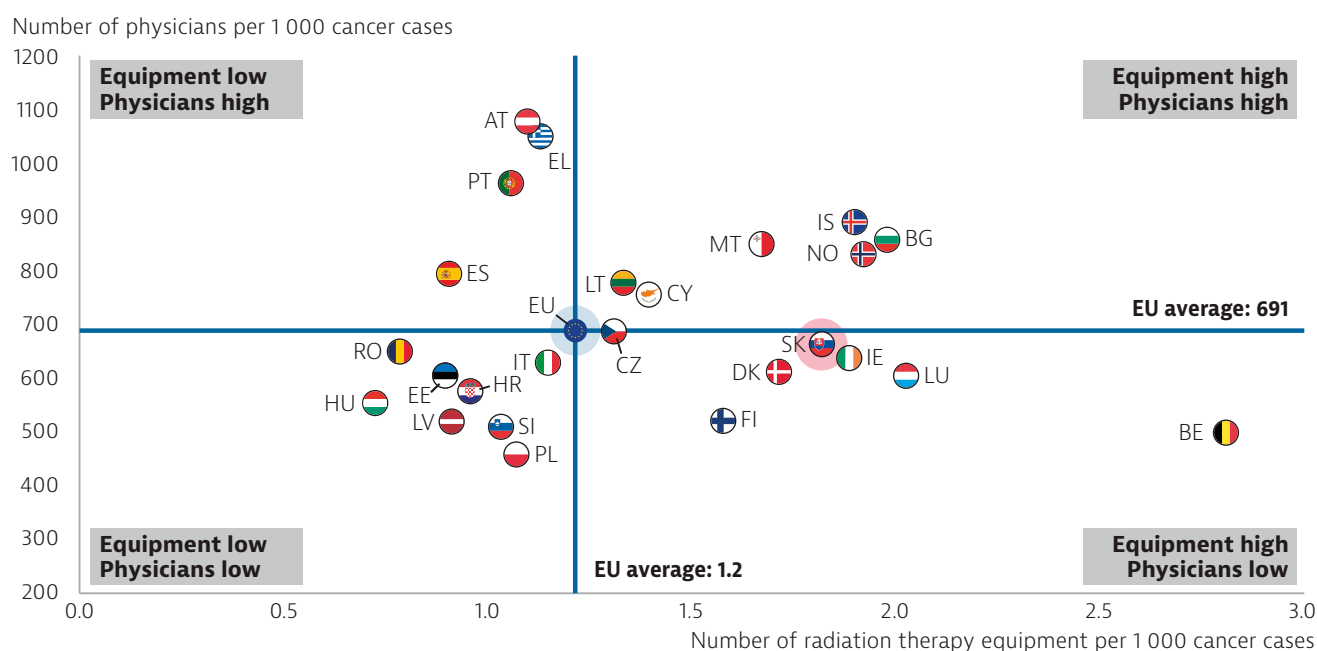
regions. Access to follow-up care for patients with a history of cancer is even more limited, as it is only available at the NCI in Bratislava.

Availability of medical equipment for cancer care is increasing in Slovak Republic

In 2020, availability of radiation therapy equipment was above the EU average in Slovak Republic (Figure 10), at 1.0 per 100 000 population (vs. 0.8 per 100 000 across the EU) and 1.8 per 1 000 cancer cases (vs. 1.2 per 1 000 across the EU). The equipment was renewed, and availability increased in 2021. In 2022, 14 radiotherapy providers are located around the country, and 5 linear accelerators per 1 000 000 population are available for cancer treatment, in line with the European Society for Radiation Oncology recommendation. As of 2022, 14 Slovak patients receive chimeric antigen receptor (CAR) T-cell treatment in centres in the Czech Republic. A centre for CAR T-cell therapy is being set up in Slovak Republic, at the NCI and is expected to become operational in December 2022.

However, some equipment is less available in Slovak Republic than in most other EU countries. In 2019, availability of computerised tomography (CT) scanners was 1.8 per 100 000 population (vs. 2.4 per 100 000 across the EU), and of magnetic resonance imaging (MRI) units was 1.0 per 100 000 population (vs. 1.6 per 100 000 across the EU). The density of particle therapy centres (7.1 per 100 000 population) was also lower than the EU average of 8.9 per 100 000, and no proton therapy centre was available.

Figure 10. Availability of radiation therapy equipment is higher than the EU average



Note: The EU average is unweighted (calculated by the OECD). Radiation therapy equipment from hospitals and providers of ambulatory care. Data refer to medical doctors (excluding nursing and caring professionals)
 Source: Eurostat and OECD Health Database (data refer to 2020, or nearest year).

Securing health workforce in cancer care remains a challenge in Slovak Republic

The number of physicians (660 per 1 000 cancer cases) was below the EU average (691 per 1 000) in 2020. Availability of doctors working in cancer care varies across regions; the eastern part of the country has a relatively low ratio of doctors for the number of patients receiving cancer care. The numbers of palliative care physicians, nurses and supporting professionals such as psychologists and nutrition therapists are considered insufficient.

The NOP Action Plans 2021-2025 aim to develop legislative changes to increase employment and incentives for health care professionals in cancer care – and specifically training of clinical trial coordinators and clinical research nurses. Furthermore, a pilot project funded by the EU Human Resources Operational Programme was approved in 2021 to finance human resources for mobile palliative teams, which were newly created to cover all Slovak regions (NOI, 2022a).

Waiting times for cancer care are not reported publicly

A national waiting time strategy was developed and aims to monitor the most critical waiting times. A new legislation was approved in September 2022 to optimize the hospital network, which defines maximum waiting times for over 700 medical services, including oncological care. Once implemented, it will allow waiting time monitoring and reporting.

Maximum waiting times for specific treatments are regulated by the Ministry of Health; if waiting times are longer than the maximum target, health insurance companies are obliged to extend their network of specialists or to incentivise providers to improve accessibility.

Slovak Republic aims to reduce waiting times through regular evaluation and financial support to increase capacity and delivery of cancer care. However, waiting times are not publicly available, so patients cannot make informed decisions about provider selection to facilitate accessing care in a timely manner.

Although improving, access to innovative cancer treatments remains low in Slovak Republic

Access to innovative drugs and clinical trials is limited in Slovak Republic. As of January 2022, of 41 innovative oncology products approved by the European Medicine Agency in 2017-2020, only nine (22 %) were reimbursed in Slovak Republic. This

was less than half the EU average (56 %) and one of the lowest among European countries (Newton, 2022). Clinical research is also limited, restricting access to clinical trials and innovative therapies for Slovak patients. As of 2022, the only department conducting clinical trials is located in the NCI in Bratislava. However, further development of the clinical trial infrastructure is supported by NOI by helping to train study coordinators and set up positions for them.

Several measures have been introduced to improve access to innovative treatments, and more are planned. In 2018, legislation was changed to allow managed entry agreements and a higher cost-effectiveness threshold for reimbursement decisions on drugs for rare diseases (NOI, 2019). To strengthen clinical research, state-owned hospitals have established biomedical research and clinical trials coordinator positions in recent years. New reforms are also being discussed to improve approval and reimbursement decision-making processes for new drugs by an independent health technology assessment body established in 2022. The NOP Action Plans 2021-2025 include commitments to train research staff and to support organisational and administrative infrastructure for academic clinical trials, as well as to fund oncology clinical trials directly.

5.2 Quality

Quality of cancer care has improved, but survival rates were lower than the EU average

Five-year net survival rates for most cancer types improved in Slovak Republic comparing patients diagnosed in 2000-2004 and those diagnosed in 2010-2014, suggesting improvements in quality of cancer care. The largest gains were made in prostate cancer survival, which increased from 64 % to 75 %, converging with the EU average (87 %). For rectum cancer, the net survival rate increased from 44 % to 49 %, although at a slightly slower pace than the EU average (from 50 % to 59 %).

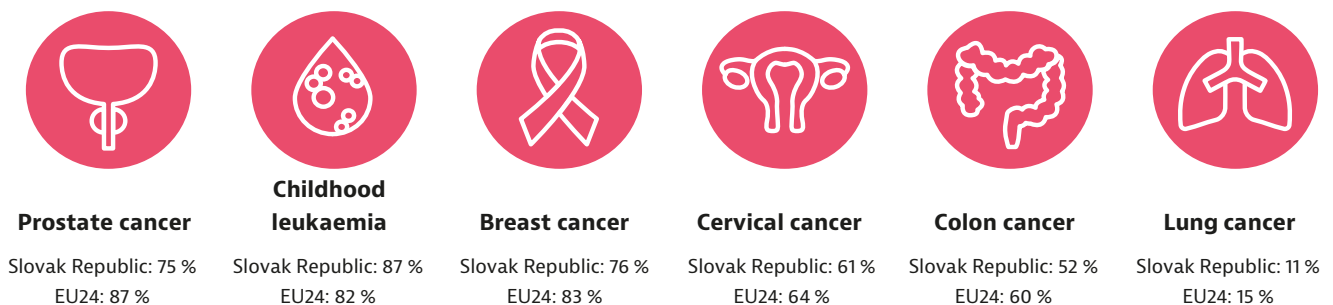
Among patients diagnosed during 2010-14, survival rates were lower than the EU averages for most cancers except childhood leukaemia at 87 % – above the EU average of 82 % – reflecting high-quality care provided at specialised hospitals (Box 2). Conversely, survival rates were lower than the EU averages for prostate (75 % vs. 87 %), breast (76 % vs. 83 %), lung (11 % vs. 15 %) and colon (52 % vs. 60 %) cancers (Figure 11). However, the data for patients diagnosed in 2010-2014 do not reflect recent progress made in Slovak Republic.

Box 2. Childhood cancer care is well organised and delivered in three specialised centres

To tackle high cancer incidence among children, cancer care is provided at three paediatric cancer centres in eastern, western and central regions of Slovak Republic, including a centre in Bratislava as part of the European Reference Network for Rare and Low Prevalence Complex Diseases for Paediatric Oncology. High-quality care in these centres is ensured through clinical support from the multidisciplinary tumour board at the NOI, and via coordination with the NCI on certain procedures. Clinical trials are conducted in all three centres.

The Bratislava hospital also collaborates internationally to ensure access to high-quality cancer care for paediatric patients. It conducts bimonthly consultations with the International Tumour Board in co-operation with the Children’s Hospital of Philadelphia in the United States of America, and addresses complex cases with St Anna Kinderspital in Vienna, Austria (NOI, 2022a).

Figure 11. Five-year net survival rates were among the lowest in the EU



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.

Slovak Republic strengthens quality assurance mechanisms for cancer screening and care

The key priority of the NOI is coordination and improvement of cancer screening programmes (NOI, 2022a). To improve the quality of cancer screening, the Ministry of Health published guidelines for breast, cervical and colorectal cancer screenings developed by the NOI. Slovak Republic also increased the number of certified mammography centres from 16 in 2020 to 19 in 2022 to make high-quality standardised screening available across regions.

With the aim of improving access to and quality of cancer screening services, analysis and utilisation of screening data have intensified in recent years. The NOI collects key data from certified mammography centres, and regularly reports on distribution of certified centres and mammograms performed at certified centres by region and stage distribution over time. According to recent evidence, an increasing number of mammograms are performed at certified centres, and the share of patients diagnosed at advanced stages has decreased between 2019 and 2020, demonstrating improvements in quality of the screening programme. For cervical and colorectal cancer screening, the NOI started to analyse data collected from health insurance companies, including

pathology data, and to report on incidence and screening rates in a timely manner.

Other efforts to improve the quality of cancer care include standardisation of radiation oncology practice with the development of clinical guidelines. Clinical audits of radiology care providers were planned in 2022 to monitor compliance with these guidelines (NOI, 2022a).

Stronger information infrastructure for cancer care will further support quality improvement

The National Oncology Registry, managed by the National Centre for Health Information, currently relies on physicians filling out forms (not always electronically) to provide epidemiological, oncological, pathological and surgical data for each cancer case. This raises concerns regarding completeness, reliability, validity, timeliness and national and international comparability of these data. As a result, only epidemiological data are published, and collected data have not been used to identify gaps in provision of high-quality care throughout the patient pathway or to support quality improvements.

The Registry is not linked to other relevant data sources such as screening data, which limits analysis and monitoring of the effectiveness of cancer screening. It is not possible, for example,

to identify factors contributing to poor cancer outcomes (such as high incidence and mortality of cervical cancer), despite relatively high rates of cancer screening.

The importance of establishing a stronger information system for cancer care is recognised in Slovak Republic. As part of implementation of the NOP, a number of actions are planned in this area, including changing legislation to allow use of National Oncology Registry data at the NOI. Strengthening health information infrastructure with data linkage capabilities – particularly with socioeconomic data – will support policy making to reduce inequalities in cancer screening and mortality rates.

Patients are not systematically involved in cancer care improvement, but their role is increasing

The need to strengthen patient-centredness within the Slovak health system is a recognised challenge (NOI, 2022b). However, patients are not systematically involved in efforts to improve the quality of cancer care, and patient-reported experience and outcome measures have not been embedded in the health information system. In addition, patients were not involved in developing the NOP and its Action Plans 2021-2025.

On a more positive note, patient involvement has increased recently in development of the HPV vaccination programme and the awareness-building campaign for cervical cancer screening as well as other cancer screening programmes.

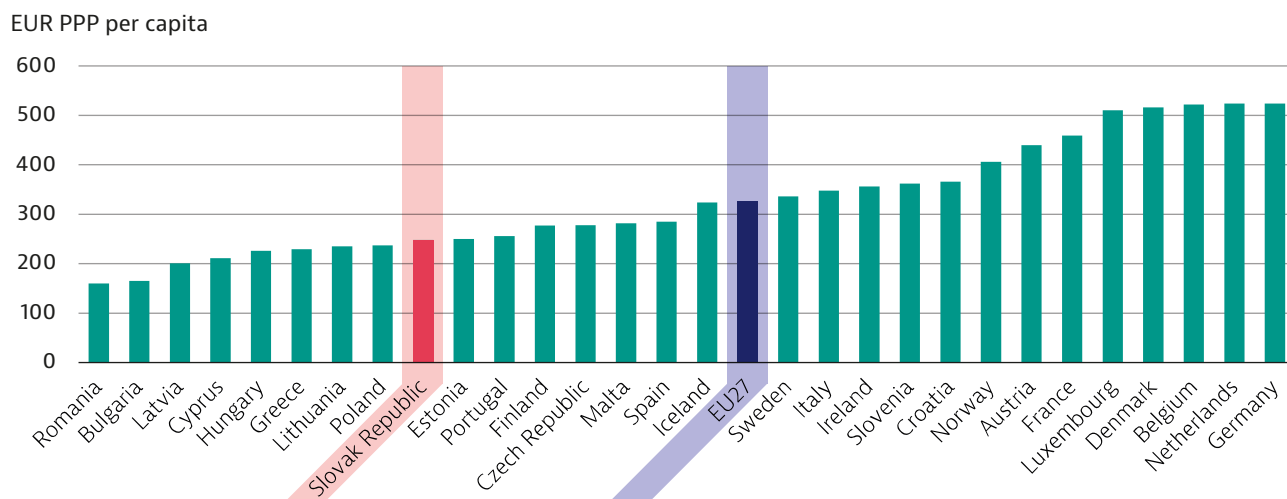
5.3 Costs and value for money

Slovak Republic has lower cancer care spending than the EU average

Compared to the EU average, overall costs of cancer in Slovak Republic, after adjusting for purchasing power parity (PPP), were lower than the EU average in 2018, at EUR 248 vs. EUR 326 per capita (Figure 12). Direct health care costs of cancer (health expenditure on cancer care) were half the EU average (EUR 79 vs. EUR 154 per capita). Indirect costs of cancer were also lower than in the EU. The cost of productivity loss due to cancer morbidity, which includes lost earnings due to sickness absence and permanent incapacity/disability of employed people, was more than 20 % lower than the EU average (EUR 32 vs. EUR 42 per capita).

However, a larger share of cancer costs is devoted to cancer drugs. In 2018, cancer drugs represented 18 % of total cancer costs compared to an average of 15 % across the EU.

Figure 12. The total cost of cancer was lower than the EU average in 2018



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

Slovak Republic introduced measures to contain the increasing costs of cancer drugs

Expenditure on cancer drugs used in inpatient care has increased in recent years (including by 11 % between 2019 and 2020), reaching EUR 72.5 million in 2020. This is driven mainly

by increased expenditure on hormonal therapy, immunomodulators and growth factors (an 84 % increase in 2017-2020) and on biological treatment (a 73 % increase in 2017-2020).

Slovak Republic tries to contain the growing cost of cancer drugs through central purchasing by

health insurance companies and joint negotiations with suppliers. All drugs used in the treatment of specific diseases are also systematically reassessed after a new drug is assessed for reimbursement decisions, leading to removal of outdated drugs from the positive list. This means that the list of effective drugs is updated regularly, which is not done in many European countries.

5.4 COVID-19 and cancer: building resilience

The COVID-19 pandemic severely affected all three cancer screening programmes

The COVID-19 pandemic delayed the introduction of national screening programmes in Slovak Republic. The only screening programme rolled out nationwide before the pandemic was for breast cancer, but it was suspended between April and June 2020. Because of the pandemic, the introduction of the cervical cancer screening programme was postponed to summer 2021, and the national rollout of the colorectal cancer screening programme was delayed to September 2021.

During the first wave of the pandemic, screening rates dropped significantly. Compared to the level in 2019, the number of mammograms performed dropped by 26.1 %, the number of cervical screening procedures fell by 12.1 %, and the number of colorectal cancer screenings via FOBT fell by 23.4 % in 2020. This resulted in an 8 % reduction in the number of newly diagnosed breast cancers and an almost 15 % reduction in the number of newly diagnosed cervical and colorectal cancers in 2020.

Screening service uptake returned to almost pre-pandemic levels in 2021, but it was still 1 percentage point lower for cervical and colorectal cancer screening. The pandemic also had a negative impact on uptake of colonoscopy among people who had participated in the pilot colorectal screening project in 2019: only 40 % of people with a positive FOBT test in the pilot underwent a colonoscopy by the end of March 2020.

Cancer treatment was delayed, and hospital admission numbers decreased

Cancer care in Slovak Republic was also negatively affected during the pandemic. Compared to the previous year, the number of patients undergoing chemotherapy decreased by 21 % in 2020, and hospital discharges for cancer declined by 9.8 %, with wide differences by cancer type. In 2020,

hospital discharges for benign cancers declined significantly by between 16.3 % and 25.9 %, while the reduction for malignant cancers was more contained (10 % decline for prostate cancer, 8 % decline for breast cancer and 14 % decline for colorectal cancer).

Plans to strengthen cancer care were also adversely affected. Research was hampered due to limitations on meetings between health care facilities and expert groups, and the development of a national biobank at NCI was put on hold in 2020 to redirect funding to manage the pandemic. Planned meetings and educational activities on palliative care had to be postponed and modified (NOI, 2022a).

However, some positive developments occurred in delivery of high-quality cancer care. Thanks to the development of telemedicine during the pandemic, plans were made to establish an online platform for multidisciplinary tumour boards based at the NCI. This can be consulted by oncologists throughout the country and can facilitate care coordination among cancer care providers, improving the quality of cancer care across regions.



6. Spotlight on inequalities

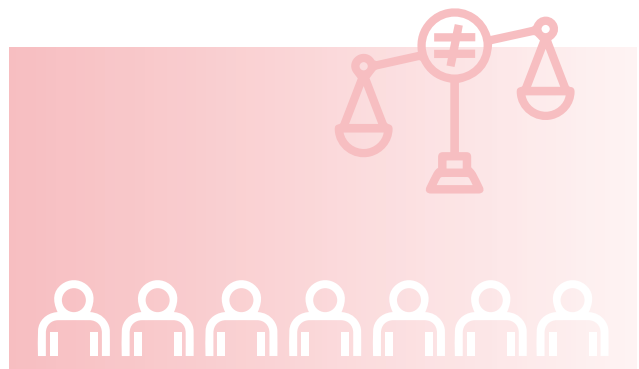
Slovak Republic ensures free access to inpatient and outpatient cancer care for all insured people, but financial barriers exist for population groups on low incomes – particularly for cancer drugs. Access to innovative cancer drugs and supply of health care services are limited, and workforce shortages exist in some regions. Cancer care is delivered mainly in specialised oncology institutes, located in two regions but coordination among them is undefined, limiting access to high-quality care in other regions. In addition, inequalities in cancer prevention, access to cancer screening and care outcomes are marked.

- Cancer mortality rates vary widely across regions. Cancer mortality in the southern region of Nitriansky was 20 % higher than in the northern region of Žilinský in 2020.
- Inequalities also exist by socioeconomic background. In 2013, cancer mortality was almost five times more likely among men with lower than higher education levels, although the education gap among women was smaller.
- Unhealthy behaviours with high risks of developing cancer are prevalent among certain population groups. The prevalence of overweight and obesity is particularly high among people aged 65 and above: more than three in four (76 %) are overweight – the highest share in the EU – while the rate was 54 % among people aged 15-64 years.
- The difference in smoking rates by education was the third highest in the EU, and rates were over twice as high among those with lower (23 %) than higher (10 %) education levels. A large gender gap also persists: more than a quarter (26 %) of Slovak men reported smoking daily compared to one in six (15 %) women.

- The breast cancer screening participation rate was 63 % among those with higher education levels, but significantly lower among those with lower education levels (41 %). The difference was also large by income, at 44 % among those on lower incomes, compared to 66 % among those on higher incomes. Differences in breast cancer screening rates are also clear across regions, with higher uptake in western regions of the country. Similar socioeconomic inequalities exist for cervical cancer screening participation rate, which is higher among higher education levels and income levels.

Several policies have been implemented to improve access to high-quality cancer care and reduce disparities. These include the introduction of multidisciplinary tumour boards and international collaboration for childhood cancer care. Slovak Republic also made efforts to contain the increasing costs of cancer drugs and to improve access to innovative drugs, although their availability is still limited.

The COVID-19 pandemic and associated containment and mitigation measures had a substantial impact on cancer screening and treatment in Slovak Republic. The national rollout of cervical and colorectal cancer screening programmes was delayed. In 2021, cervical and colorectal cancer screening rates are still lower than in the pre-pandemic period. The development of telemedicine during the pandemic is, however, a positive advancement to improve access to high-quality care, and to reduce geographical inequalities in access to cancer care.



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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
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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