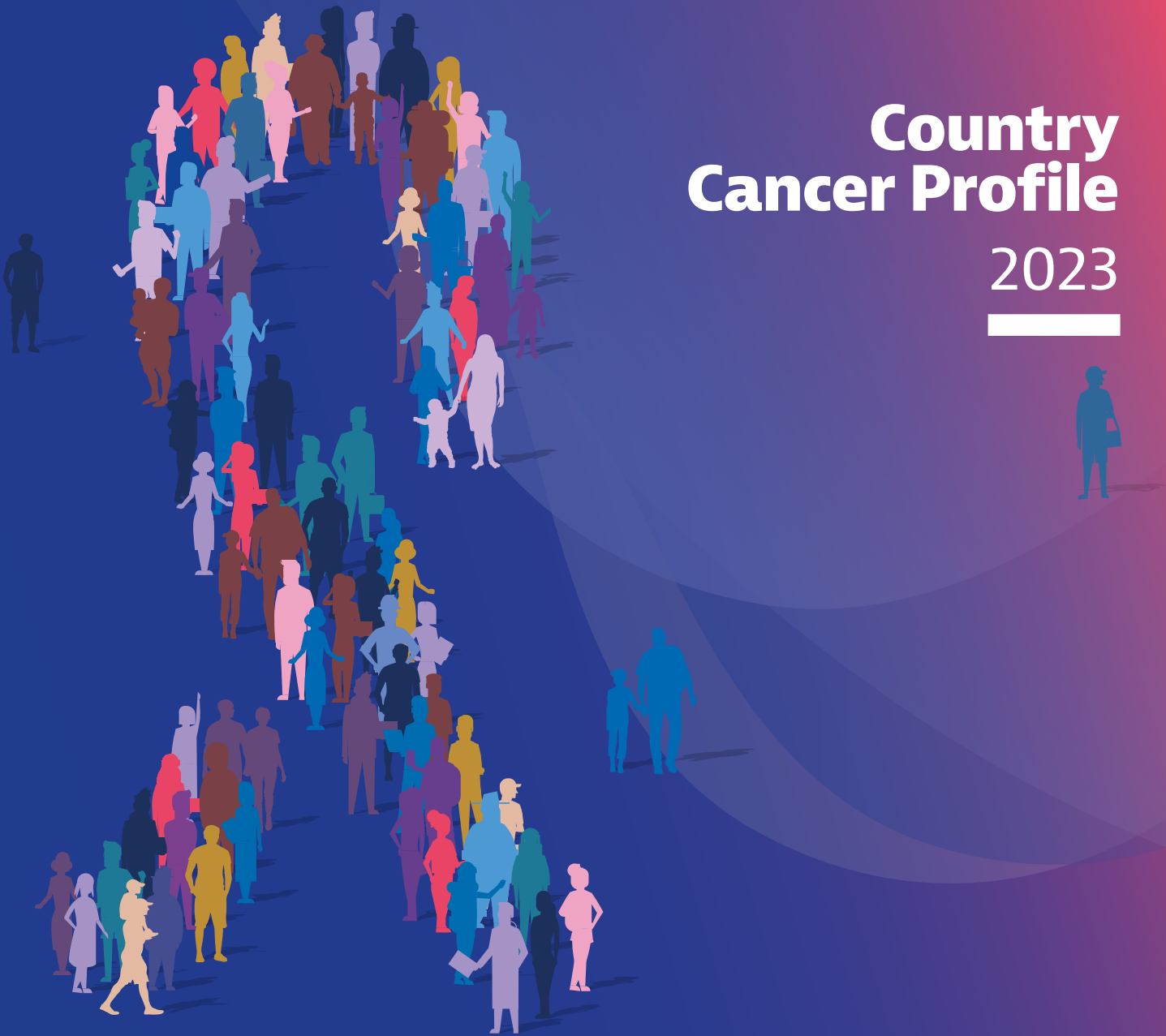




CZECH REPUBLIC

# 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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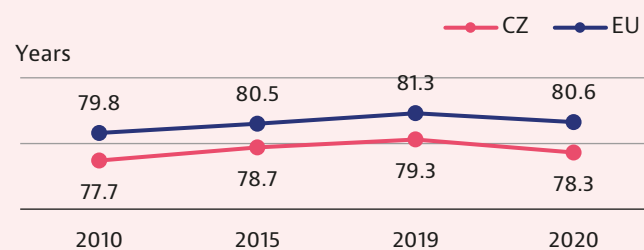
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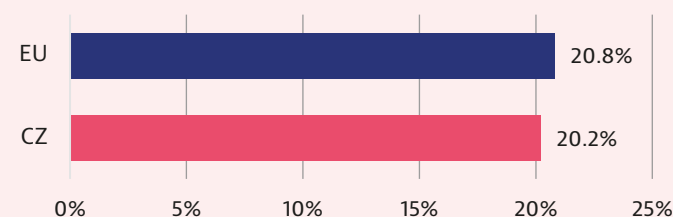
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## Summary of the main characteristics of the health system

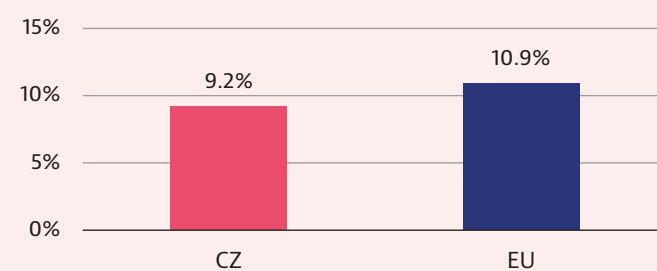
### LIFE EXPECTANCY AT BIRTH (YEARS)



### SHARE OF POPULATION AGED 65 AND OVER (2021)

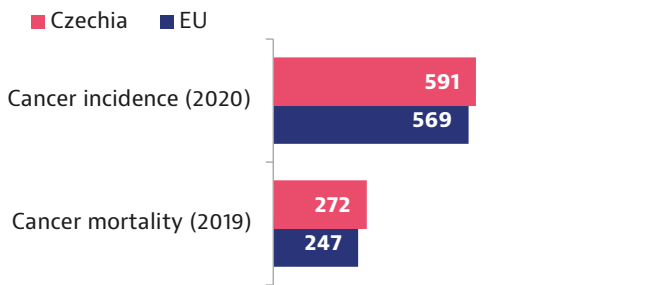


### HEALTH EXPENDITURE AS A % OF GDP (2020)

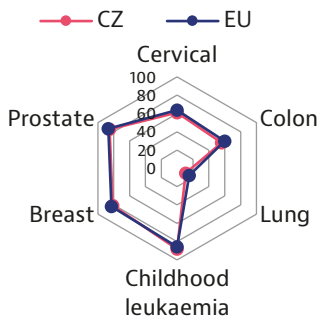
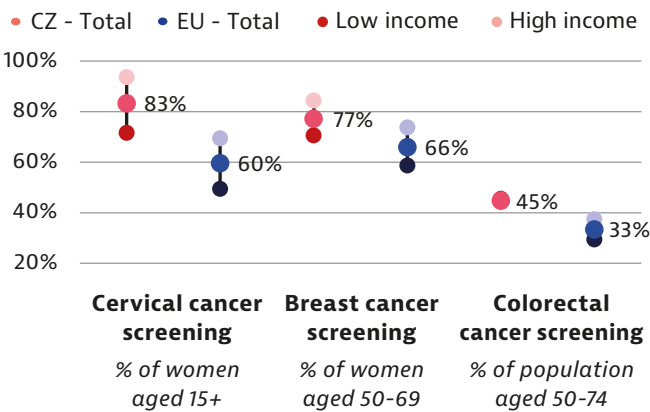
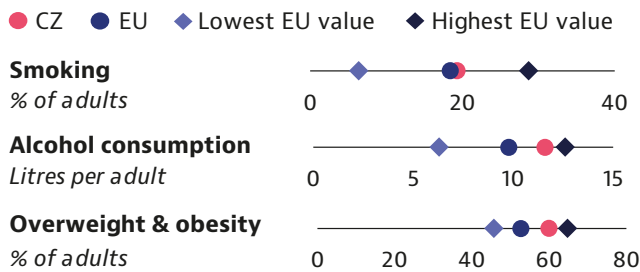


Source: Eurostat Database.

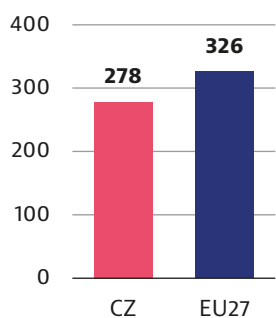
# 1. Highlights



Age-standardised rate per 100 000 population



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



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

## Cancer in Czech Republic

Estimated cancer incidence is high in Czech Republic, with significant regional variation and differences by sex – especially for lung cancer. Cancer mortality rates are above the EU averages for all main causes of cancer death but are decreasing. High rates of preventable mortality suggest further room for improvement.

## Risk factors and prevention policies

Alcohol consumption and rates of overweight and obesity in Czech Republic are among the highest in the EU, representing major public health concerns. Despite recent anti-tobacco policies, the number of smokers remains high, especially among groups with lower education levels.

## Early detection

Cancer screening programmes are well established and complemented by personalised invitations. Participation rates are higher than the EU averages for cervical, breast and colorectal cancers and have been stable in recent years, with the exception of 2020. Regional differences are of particular concern.

## Cancer care performance

Cancer care quality has increased over the past decade, but five-year survival rates for major types of cancer are below the EU averages. Highly specialised cancer care is provided in accredited oncology centres, offering access to innovative treatments and multidisciplinary team consultations. Around 71 % of cancer patients were treated in these centres in 2020, but with substantial regional differences. In 2018, the total cost of cancer in Czech Republic was 15 % lower than the EU average.

# 2. Cancer in Czech Republic

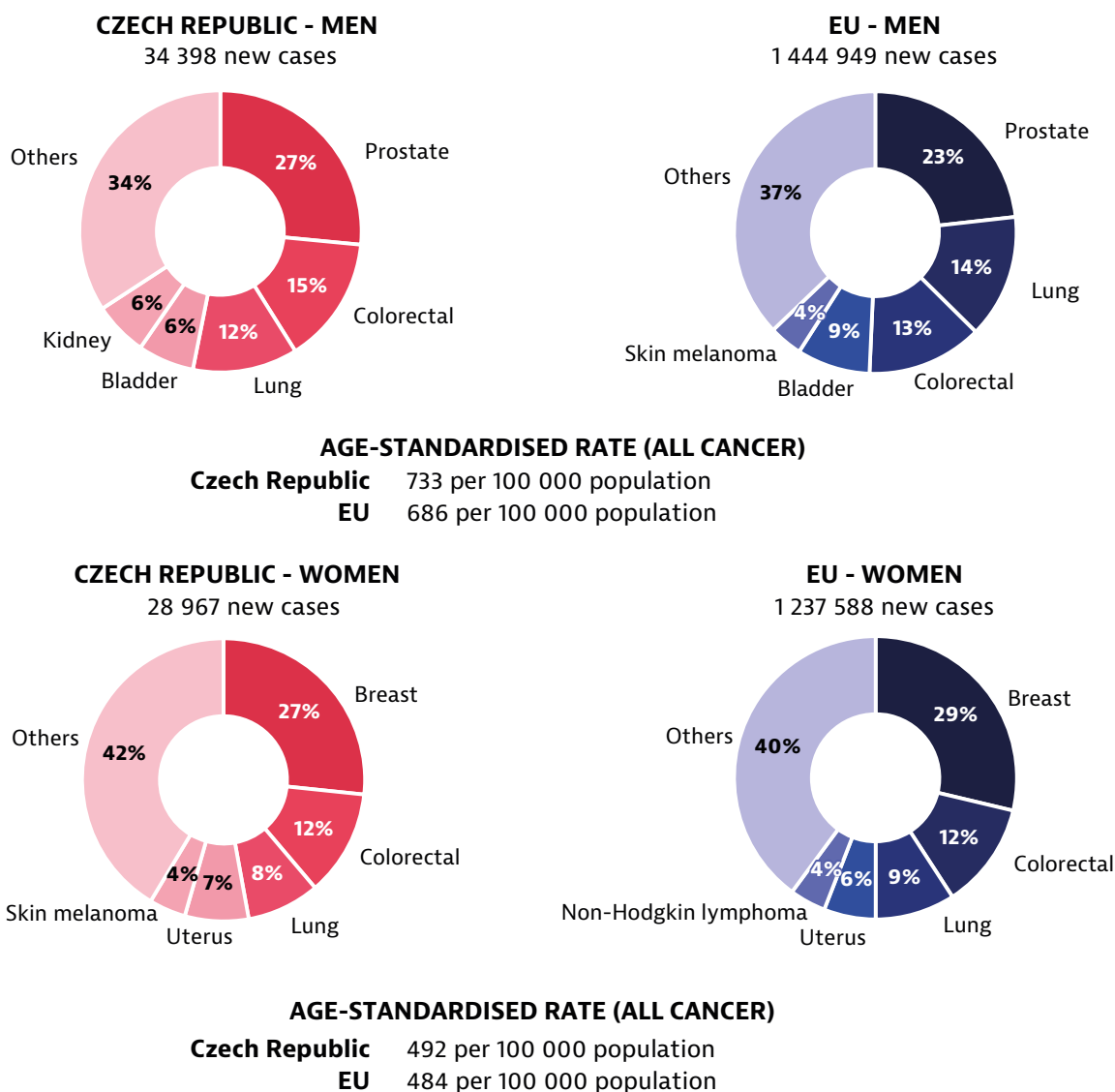
## Cancer incidence rate is above the EU average

The estimated cancer incidence rate is high in Czech Republic. According to European Cancer Information System (ECIS) of the Joint Research Centre based on incidence trends from pre-pandemic years, almost 63 400 people were expected to be newly diagnosed with cancer in 2020 (Figure 1). The age-standardised rate was 591 new cancer cases per 100 000 population – about

4 % higher than the EU average. Cancers with the highest number of new cases were expected to be prostate cancer (188 per 100 000 population), breast cancer (132 per 100 000), colorectal cancer (81 per 100 000) and lung cancer (61 per 100 000). Incidence rates were expected to be above the EU averages for prostate (18.6 % higher) and colorectal cancer (12.1 % higher), but below the EU averages for breast (7.6 % lower) and lung cancer (9.7 % lower).

**Figure 1. Estimated cancer incidence is particularly high among men in 2020**

### Distribution of cancer incidence by sex in Czech 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.

In 2020, gastric (stomach) cancer was expected to constitute 2 % of new cancer cases in both men and women, and skin melanoma was expected to constitute 4 % of new cancer cases in both men and women, similar to the EU averages. For paediatric cancer, the age-standardised incidence rate in children under 15 years was expected to be 12 per 100 000 in 2020, which is lower than the EU average (15 per 100 000 population). In 2013, the estimated number of new rare cancer cases in Czech Republic was 12 708.

### Differences in cancer incidence rates by sex are large, particularly for colorectal cancer

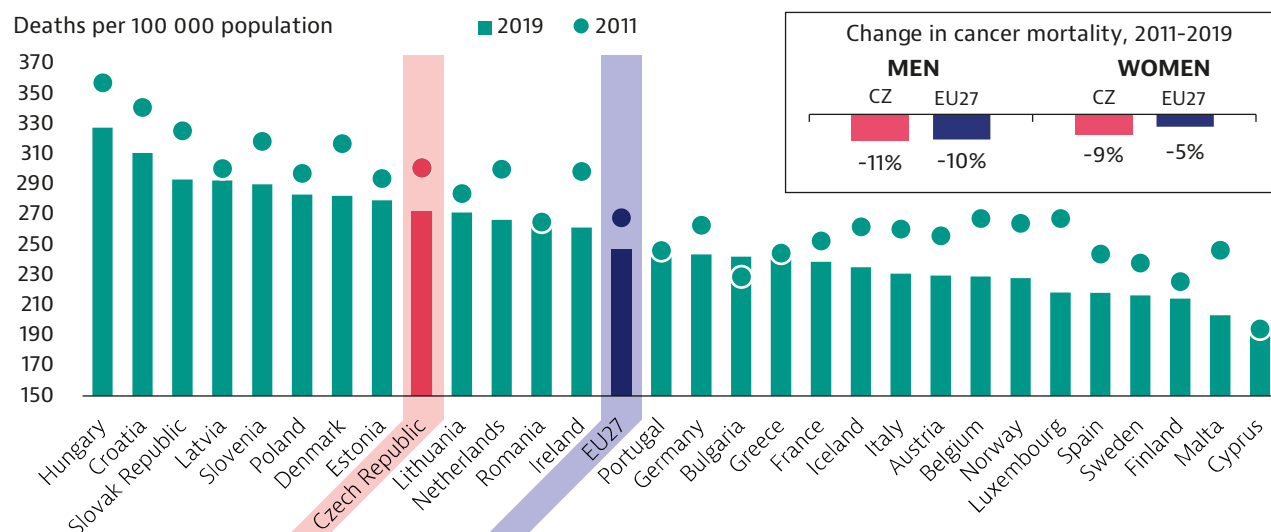
Age-standardised incidence rates were expected to be above the EU averages for both men (by 7 %) and women (by 2 %), with a relatively large gap for some cancer types (Figure 1). For colorectal cancer, the incidence rate for men was expected to be 88 % higher than for women, which is more than the EU average gender gap (63 %). For lung cancer, the incidence rate for men was expected to be more

than double that for women in Czech Republic, but the gender gap is comparable to the EU average.

### The cancer mortality rate is high but converging to the EU average

In 2019, almost one in four deaths (23 %) in Czech Republic were due to cancer, and the cancer mortality rate was 10 % higher than the EU average (Figure 2). The most significant cancer types were lung (50 deaths per 100 000 population), colorectal (35 deaths), pancreas (22 deaths), breast (18 deaths) and prostate (15 deaths) cancers (Figure 3). Mortality rates were well above the EU averages for colorectal (by 19 %) and pancreas (by 23 %) cancers and slightly above the EU average (by 8 %) for prostate cancer, while the rates were slightly below the EU averages for breast (by -6.2 %). For the most important causes of cancer death, gender differences remain high. Colorectal cancer mortality rates were 31 deaths per 100 000 population for women vs. 76 for men; lung cancer mortality rates were 24 deaths per 100 000 population for women vs. 51 for men.

**Figure 2. Despite the large decline in recent years, cancer mortality is still above EU average**



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

The cancer mortality rate has decreased faster than the EU average since 2011, especially for women. The reduction has been more pronounced than the EU average for all main causes of cancer death: breast cancer mortality decreased by 12 %, colorectal by 17 %, lung by 16 % and prostate by 8 % (Figure 3). Pancreas cancer mortality decreased by 3 % compared to the average increase of 4 % across the EU.

In 2019, gastric (stomach) cancer accounted for an overall mortality rate of 10 per 100 000 population in 2019 (which is the same as the EU average), while

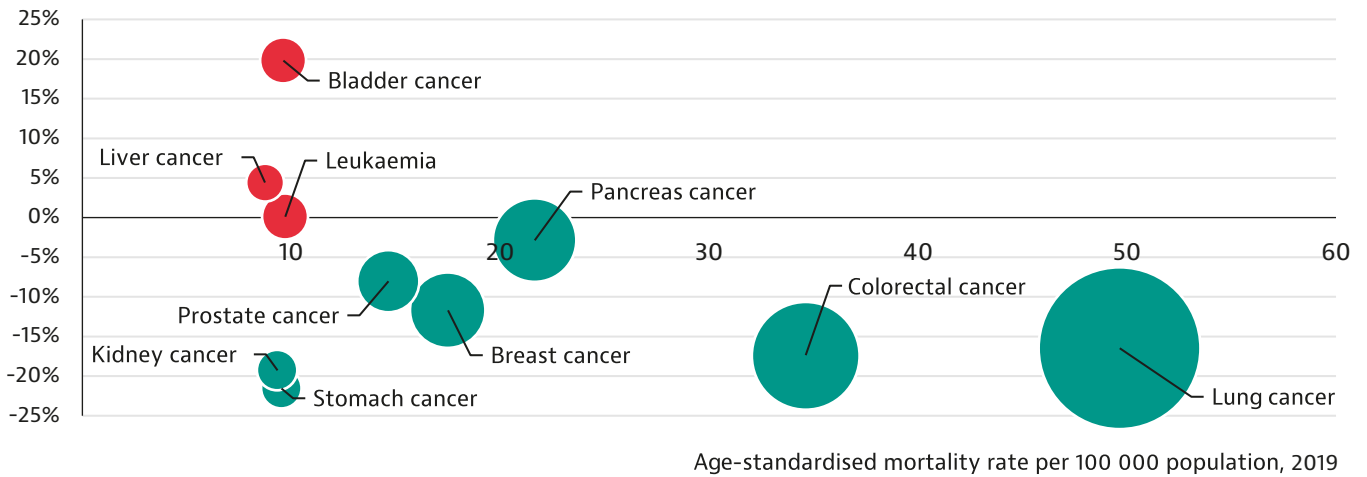
skin melanoma accounted for an overall mortality rate of 4 per 100 000 population (slightly higher than the EU average).

### Regional differences in cancer incidence and mortality are very high

In 2016-2020, the incidence rate for colorectal cancer varied across the 14 Czech regions by up to 29 %. The difference between the regions with the lowest (Zlínský) and highest (Ústecký) incidence of lung cancer was two-fold, while the difference in cervical cancer incidence was 69 %

**Figure 3. Mortality rates for main cancer types decreased in recent years**

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.

(lowest incidence observed in Vysočina and highest incidence observed in Karlovarský).

For breast cancer and colorectal cancer, the mortality rate was more than 30 % higher in some regions. For lung cancer, mortality was more than two times higher in Ústecký than in Zlínský regions. For cervical cancer, the difference in mortality rates was almost 2.3-fold across regions (Czech National Cancer Registry, 2022).

**Preventable and treatable cancer mortality rates are improving steadily**

Preventable<sup>1</sup> and treatable<sup>2</sup> mortality rates in Czech Republic decreased between 2011 and 2018 – preventable by 15 % and treatable by 18 % – a faster decline than in most EU countries, bringing rates down to EU averages. These result from improvements in breast, cervical and colorectal cancer screening, and in access to and quality of cancer care in the country. However, preventable mortality rates did not decrease as fast among women, suggesting room to reduce health risk factors.

During 2000 and 2019, potential years of life lost due to malignant neoplasms saw the second largest relative decrease among EU countries of 41 %, and it accounted for 1 361 years of life lost among 100 000 people aged up to 75 years. The relative decrease was larger among men (46 %) than women (35 %), with 1 571 and 1 168 years of life lost in 2019, respectively.

**The National Oncology Plan 2030 was launched in mid-2022**

After more than a year of preparation, the National Oncology Plan of the Czech Republic 2030 (NOP 2030) was approved by the government in June 2022. The NOP 2030 aligns with the Europe’s Beating Cancer Plan (European Commission, 2021) and the “Health 2030” Strategic Framework for Health Care Development in the Czech Republic to 2030, building on the National Oncology Programme 2022-2030 of the Czech Society for Oncology and a similar programme of the Czech Haemato-oncology Society. The accompanying action plans are in development by an advisory committee at the Ministry of Health, composed mainly of representatives of professional medical societies.

The NOP 2030 focuses on innovations in early diagnostics, end-of-life care development and patient-centredness (Box 1). It also addresses strengthening cancer care organisation, which is already centralised, and improving regional accessibility where gaps remain.

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.

### Box 1. The National Oncology Plan 2030 focuses on four strategic areas

The NOP 2030 sets broad policy goals in four strategic areas:

- improving efficiency of all levels of cancer prevention (primary, secondary and tertiary prevention)
- improving quality of life via patient-centred care (including accessibility of rehabilitative, follow-up and palliative care, higher involvement of patients and monitoring of people with a history of cancer)
- efficient coordination of cancer care (including continuity of care, personalised medicine development and care accessibility)

- high standards of cancer care (including a skilled workforce, technological infrastructure, care quality monitoring, innovative treatment accessibility, research support and harnessing of digitalisation benefits).

Action plans to support these goals are still in development.

## 3. Risk factors and prevention policies

### The rate of overweight and obese adults in Czech Republic was among the highest in the EU in 2019

According to the EHIS, prevalence of overweight and obesity among people aged 15 years and over has increased steadily, reaching 60 % in 2019 – higher than the EU average of 53 % (Figure 4). Overweight and obesity rates are higher among men (69.8 % vs. an EU average of 60.2 %) than women (50.6 % vs. an EU average of 45.7 %), and higher among elderly people (73.2 % vs. an EU average of 62.8 %) than people aged 15 to 64 years. In 2019, 20 % of Czech adults were obese, but if current trends continue it is projected that 35 % will be obese by 2030 (MZČR, 2020).

More than half of people aged 15 years and over (54 %) reported eating no fruit daily, and 58 % reported eating no vegetables daily in 2019. These rates are higher than in most EU countries, despite some improvements in recent years. Fruit and vegetable consumption was less common in Czech Republic than in most EU countries across all population subgroups (disaggregated by age, sex and education). However, women and people with higher education levels did somewhat better than other subgroups. Further, only 25 % of population aged 15 years and over reported engaging in moderate physical activity in 2019, which is also lower than across other EU countries (33 %).

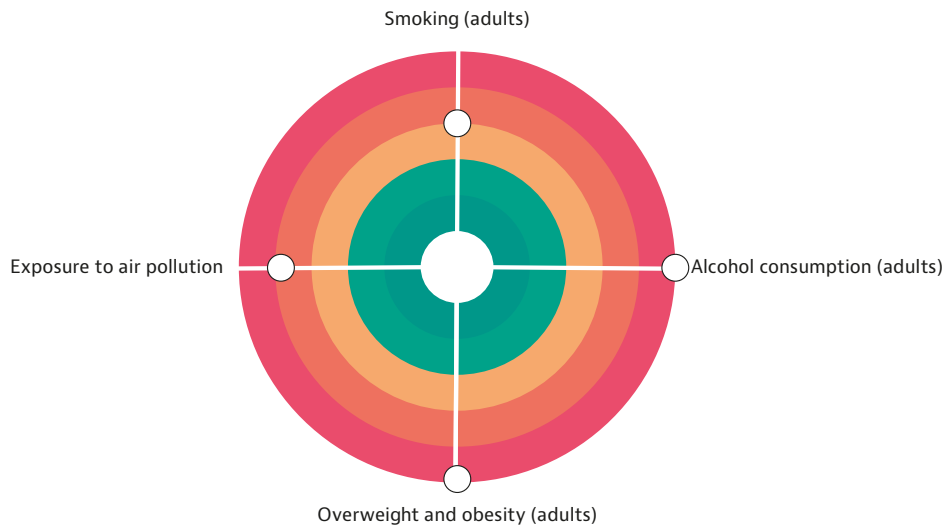
### Alcohol consumption remains among the highest in the EU

Overall alcohol consumption among adults, at 11.6 litres of pure alcohol per capita in 2020, was the second highest in the EU. According to a recent study (OECD, 2021), Czech Republic has especially low scores for interventions implemented in the domains of pricing, reducing harm, and monitoring and surveillance, as defined by WHO's 2010 Global Strategy to Reduce the Harmful Use of Alcohol. Excise duty on alcohol is lower than the EU average, although it was increased by 13 % in January 2020 (the first increase since 2010). Attempts to impose restrictions on alcohol advertising have not yet been politically successful.

### Nearly one fifth of adults smoke daily, but anti-tobacco policies have been implemented recently

Although cigarette smoking decreased slightly over the past decade, 19 % of people aged 15 years and over smoked daily in 2019 – slightly above the EU average of 18 %. The smoking rate was higher than the EU average for both men (23 % vs. 22 %) and women (16 % vs. 15 %). Smoking was less prevalent among people with higher education levels (8 %), who were almost three times less likely to smoke than those with lower education levels (Figure 5). Smoking was also less prevalent among people aged 65 years and over.

**Figure 4. Overweight, obesity and alcohol consumption are major public health concerns in Czech Republic**



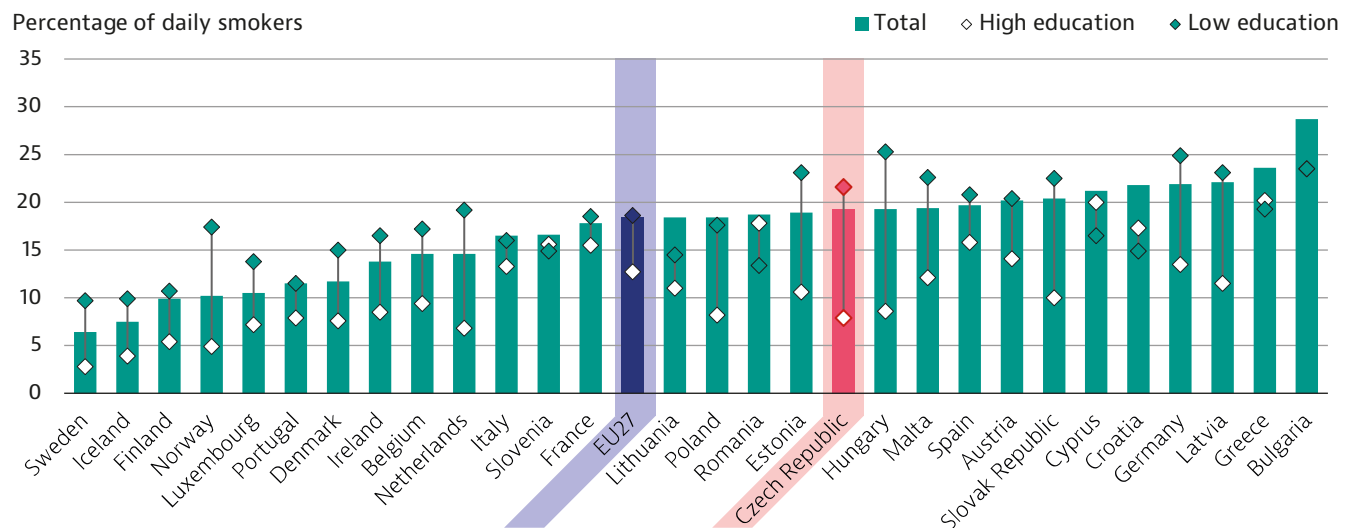
Note: The closer the dot is to the centre, the better the country performs compared to other EU countries. No country is in the white "target area" as there is room for progress in all countries in all areas.

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).

In 2017, comprehensive tobacco control legislation (including a ban on smoking in public places) was introduced, and in 2020 tobacco excise taxes increased by 10 %. Later in 2020, a comprehensive tax policy change was passed, including a further increase of tobacco excise tax by 10 % in 2021, and by 5 % in both 2022 and 2023. These policies seem to have had a positive impact, as the smoking

rate has decreased in recent years, according to a National Institute of Public Health survey. However, 20 % of people continue to be subjected to second-hand smoking at their workplace, despite the ban on smoking in public places, and almost two thirds of people are still smoking at the same rate as before the ban (Csémy et al., 2021).

**Figure 5. In Czech Republic, smoking rates vary widely by education level**



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

**Exposure to air pollution is higher in Czech Republic than in the EU**

In 2019, exposure to PM<sub>10</sub><sup>3</sup> in Czech Republic was 20.3 µg/m<sup>3</sup>, similar to the EU average (20.5

µg/m<sup>3</sup>). However, Czech Republic had a higher concentration of PM<sub>2.5</sub> than in the EU (14.4 µg/m<sup>3</sup> vs. 12.6 µg/m<sup>3</sup>). According to the Institute for Health Metrics and Evaluation, ozone and PM<sub>2.5</sub> exposure

3 Particulate matter (PM) is classified according to size: PM<sub>10</sub> refers to particles less than 10 micrometres in diameter; PM<sub>2.5</sub> to particles less than 2.5 micrometres in diameter.



accounted for an estimated 6 % of all deaths in Czech Republic in 2019, a rate higher than the average across the EU (4 %).

**Although prevention is high on the health policy agenda, budgets are not sufficiently allocated**

Reflecting the high prevalence of risk factors for health in Czech Republic, disease prevention, public health promotion and increasing health literacy are among the main goals of the “Health 2030” Strategic Framework for Health Care Development to 2030 (MZČR, 2020). Spending on prevention has increased slightly in recent years; it represented 3.8 % of total health spending in 2020, which is higher than the EU average of 3.4 %.

The NOP 2030 also prioritises health promotion and primary cancer prevention, aiming to motivate lifestyle changes and improve health literacy, including through new programme guidelines. These should facilitate regular cost-effectiveness evaluations of prevention policies, which are not currently undertaken. In addition, the NOP 2030 aims to strengthen the network of smoking cessation counselling offices and the human papillomavirus (HPV) vaccination programme.

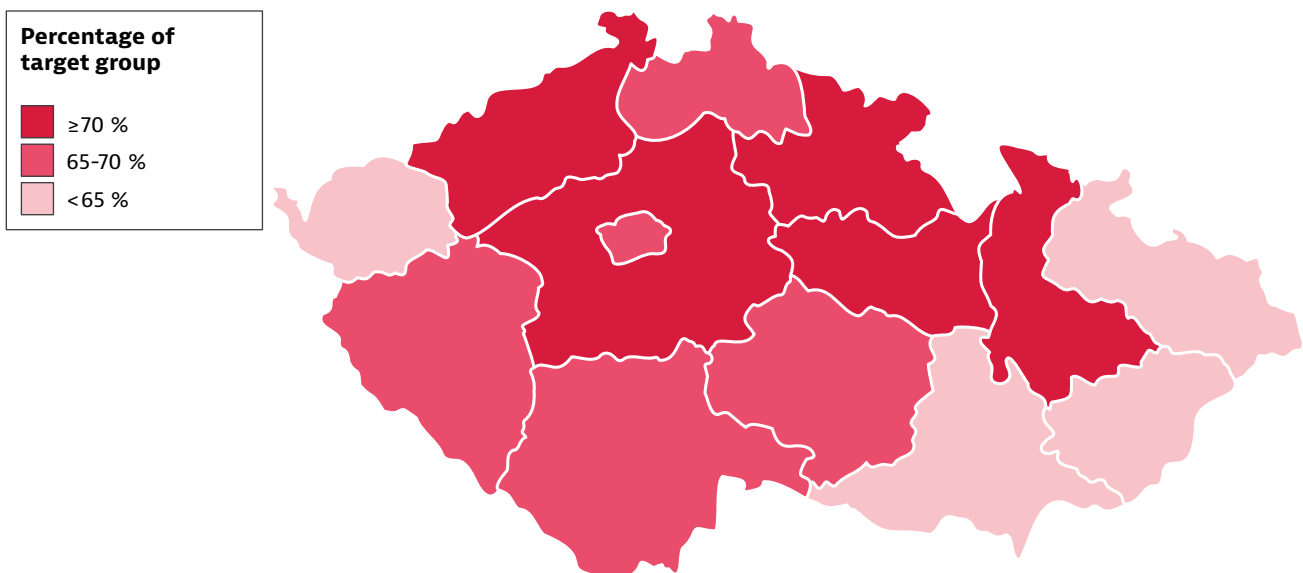
**Human papillomavirus vaccination is free of charge, but there are regional disparities in uptake**

HPV vaccines are administered by general practitioners and by gynaecologists, and are reimbursed from social health insurance (SHI) if the first dose is given between the ages of 13 and 14 years. HPV vaccination has been reimbursed for girls since April 2012 and for boys since January 2018.

HPV vaccination uptake for girls’ target group was 65 % in 2020 (MZČR, 2022) – far below the Europe’s Beating Cancer Plan goal of 90 %. A significant decreasing trend in vaccination uptake can be seen since 2012 when the rate was 76 %, stabilising around the current rate in 2017. Very different rates are reported across regions, ranging from 55 % to 71 % (Figure 6). For boys, the HPV vaccination rate was 41 % in 2020, with a range between 28 % and 48 % among regions (ÚZIS, 2022a).

Between 2011 and 2019, the cervical cancer mortality rate decreased substantially, but it is still a quarter higher than the EU average (4.8 vs. 3.8 per 100 000 population). The NOP 2030 recognised that the decreasing HPV vaccination rate among girls and low vaccination awareness among boys were issues, but detailed policy responses have not yet been prepared.

**Figure 6. Human papillomavirus vaccination rates differ considerably across regions**



*Note: Data refer to girls aged 13 years in 2020 who received the first HPV vaccine in 2020 or 2021. Only vaccines covered by SHI are counted; vaccines administered to other ages are not counted. Source: ÚZIS (2022a).*

# 4. Early detection

## Population-based cancer screening programmes have high participation rates

Population-based screening programmes (screening offered to a specific at-risk target population) for breast, cervical and colorectal cancers are well established and fully covered by the health insurance funds (HIFs) for target groups. Since 2014, personalised invitations have been sent to target populations; this increased screening participation especially among the first-time screening participants (Ngo et al., 2018). The impact on screening uptake was most visible for colorectal cancer screening; for the other two programmes the participation rate was mainly stabilised.

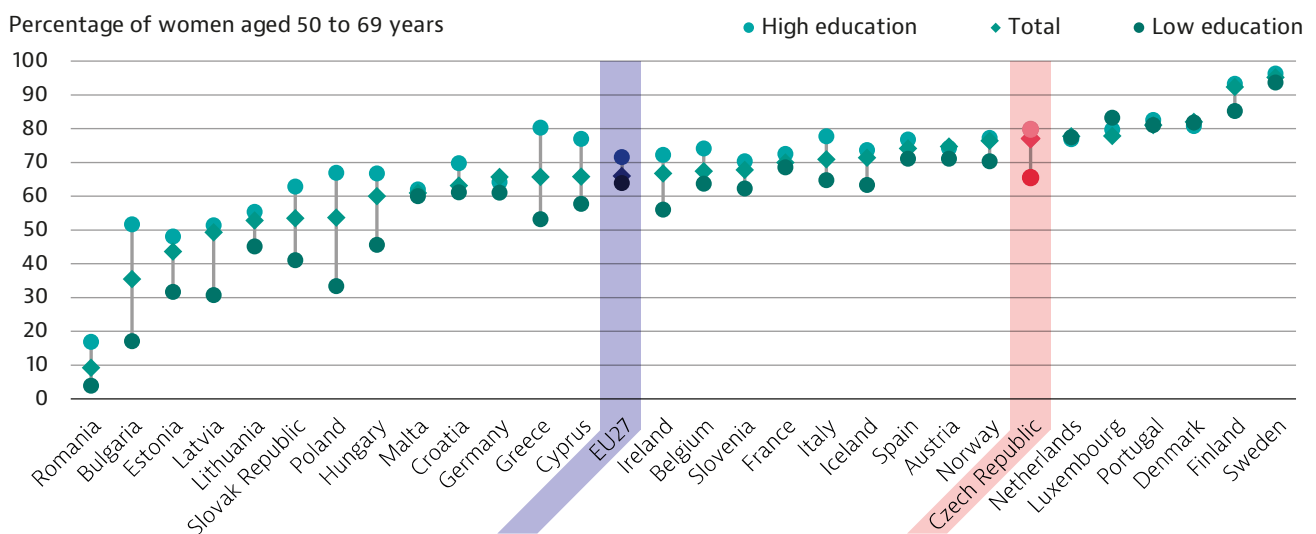
## Breast screening programme participation is high, but with significant regional differences

Launched in 2002, the breast cancer screening programme offers a mammogram free of charge

every two years to women aged 45 years and over. Participation is also optional for women aged 40-45 years, but they have to pay out of pocket. The participation rate has been stable since 2014, and 77.1 % of women aged 50 to 69 years reported having a mammogram in the past two years in 2019 – above the EU average of 65.9 % (Figure 7). Self-reported participation rates were higher than the EU averages across all population subgroups. Breast screening participation rates among women with lower education levels is 18 % lower than among those with higher education levels.

Regional differences in participation rates are large. Based on administrative data, the proportion of women aged 45-69 years who had a mammogram in 2016-17 was lowest in the capital city Prague (55 %) and highest in Vysočina region (72 %), while the average participation across the country was 60 % (ÚZIS, 2022a).

**Figure 7. The breast cancer screening rate was lower for women with lower education levels**



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

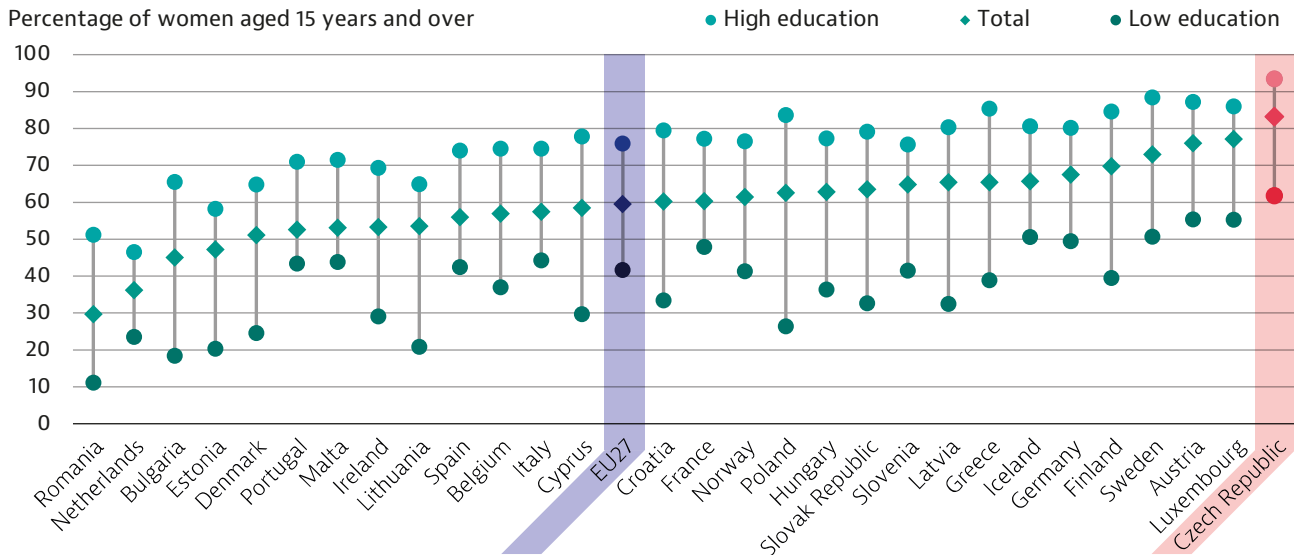
## The cervical cancer screening rate is the highest in EU

Launched in 2008, the smear test is fully covered by the HIFs and is performed once a year as part of a preventive gynaecological examination for all women aged 18 years and over. Women aged 25-70 years who do not participate in regular screening are sent personalised invitations.

Since 2021, HPV DNA screening is available, as part of a preventive gynaecological examination, for women aged 35 and 45 who have negative cytology screening. Other age groups can also take the HPV DNA test, but they have to pay out of pocket.

Cervical screening has the highest uptake among women in the EU: in 2019, 83 % of women reported having a cervical smear test in the past three years, compared to the 60 % EU average. Important differences in participation rates can be seen between women with lower (62 %) and higher (93 %) education levels (Figure 8), and between those on lower (72 %) and higher (94 %) incomes. Across regions, based on administrative data participation in cervical cancer screening in 2017 was lowest in Prague (53 %) and highest in Pardubický region (60 %) (ÚZIS, 2022b).

**Figure 8. Women with lower education levels are less likely to attend cervical cancer screening**



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.

A cervical cancer screening pilot was undertaken in 2018-2021, targeted at women who do not participate in regular gynaecological check-ups. Self-sampling HPV tests were sent to almost 5 000 women aged 50-65 years by registered mail, but the response rate was only around 7 %.

Another part of the pilot focused on vulnerable groups – in particular women at risk of poverty and social exclusion, especially in deprived areas. The National Public Health Institute’s mediators distributed the tests to about 200 women, and more than half were returned for laboratory examination. The pilot is being evaluated.

**Colorectal screening has above the EU average participation rate**

Colorectal screening has been available for people aged 50 years and over free of charge since 2000 and in 2009 the design of the programme was updated to include also colonoscopy. Eligible people can choose either a faecal occult blood test (FOBT) once a year for those aged 50-54 years and every other year for people aged 55 years and over, or a colonoscopy every 10 years.

The proportion of people aged 50 to 74 years who reported having a faecal occult blood test in the past two years in 2019 was 44.7 % in Czech

education levels (Figure 8), and between those on lower (72 %) and higher (94 %) incomes. Across regions, based on administrative data participation in colorectal screening in 2017 was lowest in Prague (30 %) and highest in Olomoucký region (37 %) (ÚZIS, 2022a). Adding the diagnostic colonoscopy and diagnostic FOBTs, administrative data for 2015-2019 show over 50 % participation for colorectal screening in three-year interval (ÚZIS, 2022b). A pilot project investigating the possibility of sending the self-sampling FOBT kits to individuals who do not participate in the regular screening was previously implemented by the National Screening Centre of ÚZIS. The pilot project is being evaluated.

Republic – higher than the EU average of 33.3 %. In 2017, based on administrative data, participation in colorectal screening was 30 % (in the standard interval for both FOBT and screening colonoscopy); but regional participation rates ranged from 23 % in Prague to 37 % in Olomoucký region (ÚZIS, 2022a). Adding the diagnostic colonoscopy and diagnostic FOBTs, administrative data for 2015-2019 show over 50 % participation for colorectal screening in three-year interval (ÚZIS, 2022b). A pilot project investigating the possibility of sending the self-sampling FOBT kits to individuals who do not participate in the regular screening was previously implemented by the National Screening Centre of ÚZIS. The pilot project is being evaluated.

**Lung cancer screening is being piloted and prostate cancer screening is under discussion**

A five-year pilot lung cancer screening programme was launched in January 2022, targeting people aged 55-74 years with a history of smoking 20 cigarettes a day for 20 or more years (or higher quantities for 10 years). General practitioners (GPs) select participants from their registered patients and refer them to pulmonary physicians, who perform a lung examination and then refer them to an accredited radiology office for a low dose CT scan. If pulmonary specialists are not accessible

or the waiting time is long, GPs can refer patients directly for radiology examination. The pilot will be evaluated and selection criteria may be adjusted before it is rolled out nationally.

Participation in opportunistic prostate cancer screening is not negligible among Czech men. Building on this interest, a pilot population-based

prostate cancer screening programme is under expert discussion. The definition of the target group has not yet been decided, but discussions are ongoing on how to focus public interest in opportunistic screening to involve the most at-risk groups.

## 5. Cancer care performance

### 5.1 Accessibility

#### **Health insurance coverage is broad, with no financial barriers to accessing cancer care**

Virtually 100 % of the population of Czech Republic is covered by SHI, which is based on permanent residence and on employment for non-Czech citizens. Cancer care is fully covered and reimbursed directly to providers of care by the HIFs. No copayments are required for cancer care surgery, treatment or pharmaceuticals administered by a health care provider, including all innovative treatments. In addition, there are no user fees for hospital stays and outpatient visits, except for using out-of-hours outpatient services when not followed immediately by an inpatient stay.

For drugs collected in a pharmacy, copayments apply to pharmaceuticals with prices higher than the cheapest drug in a reference group, and there is an annual limit on these copayments, stratified by age and economic situation. Opportunistic cancer screening for non-targeted groups is not covered by the SHI, but some HIFs reimburse them in part for insured citizens. In addition, SHI does not cover social care services that may be needed alongside end-of-life health care. These costs are subject to social insurance, however, and people may be eligible for a specific social care allowance.

#### **The cancer care provider network is centralised, with a clear hierarchical structure**

In 2022, Czech Republic had 15 accredited comprehensive cancer centres (KOCs), eight haemato-oncology centres and two centres for highly specialised oncology and haemato-oncology care for children. On a regional basis, the KOCs form and lead regional oncology groups (ROCs), within which they cooperate with other regional

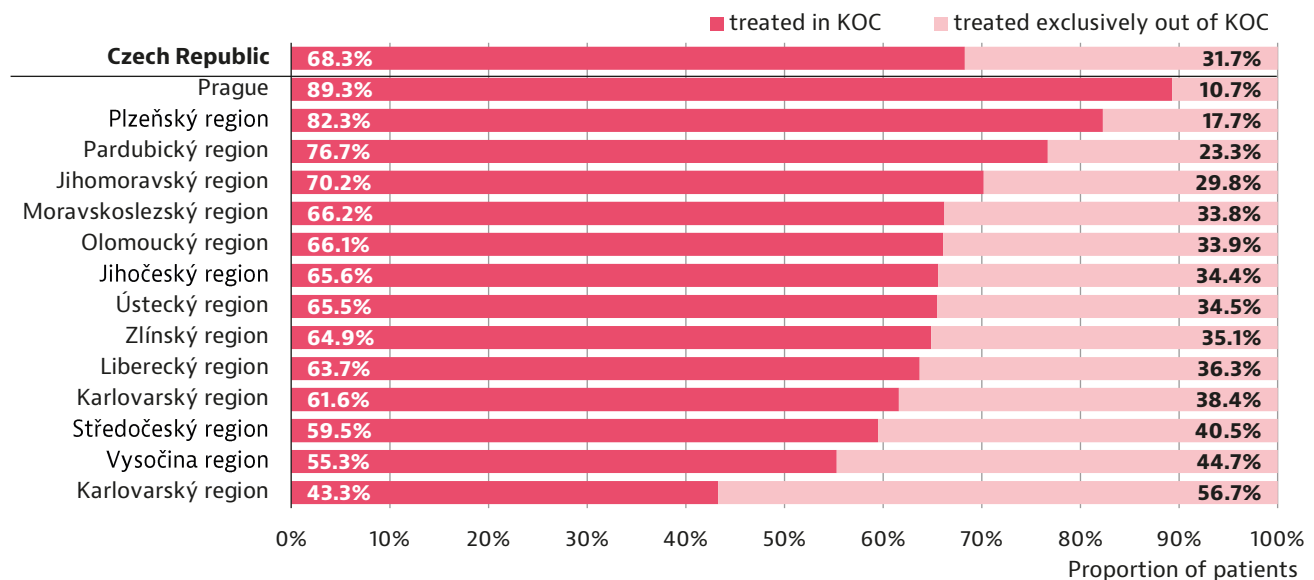
oncology care providers, consult on treatment decisions and coordinate follow-up care (see Section 5.2). Some treatments can only be provided in the accredited centres. For other treatments, a cancer patient can be referred from a KOC to an ROC provider after the treatment decision is made.

#### **Access to highly specialised care is limited in certain regions**

Every region except Karlovarský has at least one KOC. The share of cancer patients treated in KOCs nationwide has increased gradually, reaching 71 % in 2020, but regional differences are significant. While the share of cancer patients treated exclusively in a non-KOC provider was 11 % in Prague in 2016-2020, it was 57 % in Karlovarský region (Figure 9). One of the main objectives of the NOP 2030 is to reduce inequalities in access in Karlovarský region. Possible measures include strengthening collaboration of the Karlovarský ROC with KOCs located in Prague and Plzeňský region and promoting use of multidisciplinary diagnostic teams (MDTs) for consultations (see Section 5.2). Establishing a new KOC is not planned, however, due to a lack of available skilled health workforce (such as specialty physicians) in the region.

While the full range of cancer care is covered by SHI and provided free of charge, travel costs are generally not covered. Geographical accessibility is an issue for people needing to travel to get their treatment on a regular basis, especially when the KOC is located at a distance or in another region. While diagnostics can be solved by MDT consultations, innovative treatments are only provided in KOCs, which may pose a barrier to adequate treatment for people unable or unwilling to travel.

**Figure 9. Shares of cancer patients treated in comprehensive cancer centres differ between regions**



Note: Patients treated for solid tumours according to place of residence. Patients referred by a KOC to another provider for further treatment are counted in the KOC share. Not all patients require treatment, diagnosis or consultation in a KOC according to guidelines, so 100 % of patients in KOCs is not a target. Source: ÚZIS (2022b). Data refer to 2016-2020.

**The Czech government faces long-term workforce issues**

Czech Republic has a general problem with shortages of highly qualified nurses in hospitals. The density of physicians per population is similar to the EU average, but differences exist across specialities and regions. More issues are reported with numbers and the age profile of GPs than acute inpatient care physicians. Oncologists are reported to be more available in Brno and Prague due to the location of medical schools, but less in western Czech Republic – in particular in Karlovarský, Liberecký and Ústecký.

For other health care professionals, the number of radiology assistants and radiation physicists is reportedly insufficient, except in Brno, where there is an accredited study programme. To deal with ageing of health care professionals, since 2019, the government has supported medical schools to increase the number of students. A similar programme is in preparation for nurse education.

**Cancer treatment technology is located throughout the country**

Availability of technical equipment for cancer care therapy is above the EU average, for both particle therapy and radiation therapy centres (Figure 10). Cancer screening and diagnosis are done by accredited providers, which are located throughout the country, but densities are different across regions. The population served by the 73 mammography screening centres ranges from 23 000 population per 1 mammogram in

Královéhradecký to 80 000 population per 1 mammogram in Jihočeský region (ÚZIS, 2022c).

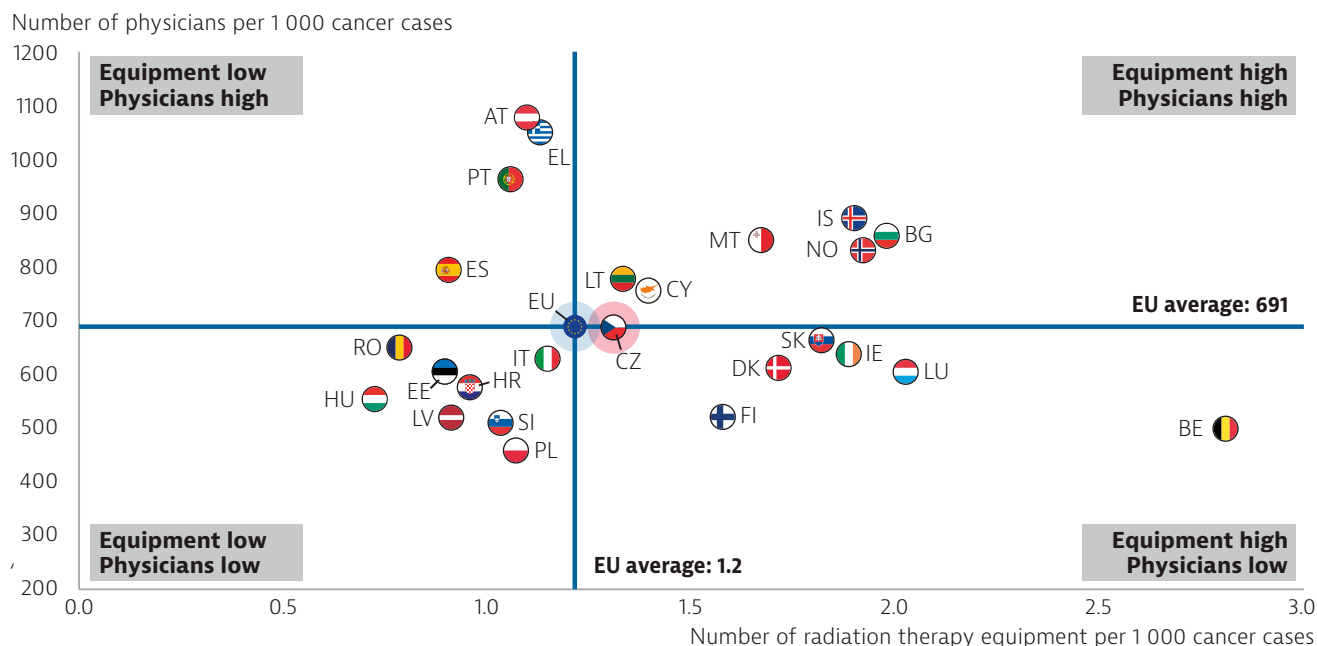
**Data on the cancer care patient pathway and timeliness are limited**

The time from positive screening result to MDT consultation and treatment is not monitored and evaluated regularly. Experts estimate that regional differences exist in timeliness from diagnosis to treatment, and that room for improvement exists. In Jihomoravský region, the regional KOC collects time from screening to MDT consultation for breast cancer, which in mid-2022 was very good, only few working days; for other regions similar data are missing. According to national experts, the worst situation is in the western part of Czech Republic. The issue may not necessarily always be related to infrastructure and capacity; it is also likely to result from insufficient collaboration, inefficient provider mutual communication and/or poor organisation of workflow.

**Access to cancer drugs is good and may improve further**

Of 160 products approved by the European Medicine Agency in 2017-2020, 55 % were available with SHI coverage as of January 2022, compared to the EU average of 46 % (Newton, Scott & Troein, 2022). This rate is higher than in other central European countries. It took on average 19 months from EU approval to SHI systematic coverage. This is two months longer than the EU average, but the process may become shorter: 2022 legislation

**Figure 10. Czech Republic has higher than average radiation therapy equipment per 1 000 cancer cases**



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).

abolished the requirement to wait for two other countries to initiate the procedure for price setting and coverage decision. Reducing the period for which a newly marketed innovative treatment has no SHI coverage will increase transparency: treatment during this period is only available based on an ad hoc decision of an individual HIF for a particular patient, which may not be the same for patients with similar needs insured by different HIFs.

The legislation also eased the way for innovative pharmaceuticals to obtain permanent reimbursement, as it prolonged the temporary reimbursement period from three to five years. Once approved for reimbursement, whether temporary or permanent, there are no limits on the number of treated patients within approved medical indications. The legislation also newly involves patients and medical societies in reimbursement decision making on orphan drugs, and adds social impact and benefit criteria, alongside cost-benefit analysis and affordability, for consideration during the assessment process.

**Palliative care is available in every region, but the range of services and their capacity vary**

All KOCs have a dedicated palliative team, provide palliative services and must have a contract for palliative home care or end-of-life care services as part of their accreditation criteria. This co-operation is well established in certain regions,

including Jihomoravský and Prague. In other regions, such as Středočeský, the situation is more complicated because of a combination of a lack of providers and insufficient capacity. Services offered may range from providing a nurse only to a palliative physician being present.

Two pilots have been conducted targeting mobile palliative care (home care provision), and since 2017 this type of service is also covered by the HIFs. However, regional differences in available capacity are substantial, and ensuring accessibility to all types of palliative care is among the priorities of the NOP 2030.

**5.2 Quality**

**The network of cancer care providers is well established**

Highly specialised oncology care centres were established in 2008 and are subject to Ministry of Health accreditation every five years, with criteria including staffing, technical and organisational requirements. The KOCs are responsible for and clinical leads for the ROCs, which were established in 2017.

The KOCs are responsible for coordinating the full spectrum of cancer care, including palliative care and follow-up care for patients with a history of cancer. Contractual co-operation of ROC providers with a KOC should ensure compliance

with common clinical protocols and guidelines and a standardised oncology care management system. GPs are also included in these collaborative oncology networks, when they gained new competencies over monitoring patients with a history of cancer in 2019 (6 500 patients were monitored by GPs in 2020). Since 2019, the KOCs in Prague and Brno also serve as national oncology centres, coordinating cancer research and being the contact points for international research collaboration.

A set of quality indicators was developed for the KOCs and ROCs in 2017, including time from detection to treatment, but results have not yet been published. The Masaryk Memorial Cancer Institute is the only KOC in Czech Republic accredited by the Organisation of European Cancer Institutes.

Some KOCs are specialised to perform specific surgical treatments and take patients on from other providers. However, there is no formal requirement for providers to refer patients with a specific surgery need to a particular KOC. Ministry of Health plans to introduce pay for quality components into reimbursement of hospitals to further support centralisation of patients into accredited KOCs.

**Nearly all child patients are treated in dedicated centres**

Cancer care for children is centralised, with solid tumours treated in two accredited centres in Prague and Brno. For haemato-oncology, primary treatment and transplants are provided in these centres, but follow-up care can also be organised in co-operation with other haemato-oncology centres around the country. The two accredited centres maintain a database of diagnosed and

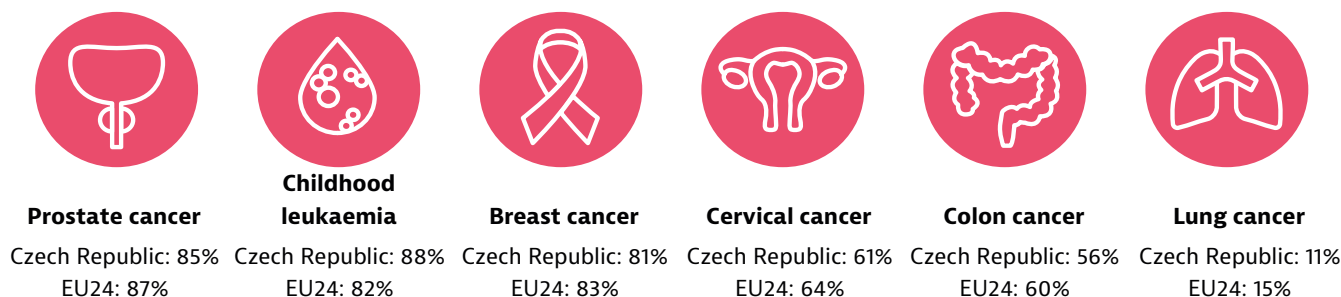
treated children patients. The NOP 2030 plans to strengthen the monitoring system for childhood cancer patients throughout their lives. According to the Czech Childhood Cancer Information System (2022), steady improvements have been made in five-year survival rates, reaching 87.5 % in 2011-2016.

**Czech five-year survival rates have improved, but generally remain below the EU average**

Survival rates for breast, lung and rectum cancers have improved since 2000, although at a lower pace than the EU average, and were still below the rates in most EU countries for patients diagnosed during 2010-14 (Figure 11). For prostate cancer, the rate of improvement was faster than the EU average, but the survival rate was still below the EU average. Five-year survival rates for lung cancer are particularly low (11 % in Czech Republic vs. 15 % in the EU). Positive exceptions are melanoma of the skin and childhood leukaemia, which continue to have survival rates above the EU average. National data show continued improvements in survival rates for most cancer types for patients diagnosed in 2015-2019 compared to those diagnosed in 2010-2014 (ÚZIS, 2022b).

More than half of breast tumours were detected at an early or localised stage in 2016-2020, and 28 % were detected at an intermediate stage. Based on Czech National Cancer Registry data, the share of early-stage breast tumour detection increased gradually from 27 % in 2000 to 48 % 2019, but it dropped to 45 % in 2020. National data also suggest a high share of tumours detected at a more advanced stage, including cancer types with organised screening programmes and among patients who are already being treated for other cancer types (ÚZIS, 2022b).

**Figure 11. Five-year net survival rates for adults are below the EU average**



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.

### **Multidisciplinary diagnostic teams are common, but utilisation needs to be improved**

Czech Republic promotes the use of MDTs to improve quality of cancer care; MDT availability is required to obtain KOC accreditation. Providers within regional networks are asked to refer patients to their KOC for MDT consultation before initialising treatment. In certain cases (pancreatic cancer, breast cancer, rare cancers and innovative cancer medicines), an MDT consultation is needed for treatment to be reimbursed by HIFs. The Czech Society for Oncology publishes guidelines on MDT consultation and estimates that about 80-85 % of newly diagnosed patients should be seen by an MDT.

While use of MDTs has increased over the past decade, consultations were provided to only 50 % of patients who engaged in treatment for a solid malignant tumour in a KOC for the first time in 2021 (ÚZIS, 2022c). In addition, there are disparities across regions. The need to strengthen collaboration between KOCs and ROCs is also stressed by clinical experts, both to promote MDT consultations for treatment decisions and to monitor treatment outcomes.

### **Regular monitoring of guideline compliance is lacking**

The Czech National Cancer Registry has a long tradition and includes clinical data reported by the KOCs and ROCs annually. The screening registry includes administrative claim data from HIFs, reported throughout the year with a lag of a few months.

Registries have not been used systematically to regularly monitor compliance with the guidelines for cancer diagnostics and treatment developed by medical societies. While, for example, minimum volume norms for selected treatments are both part of the guidelines and included in the KOC accreditation criteria, no monitoring system is in place to assess compliance with these norms. Monitoring of guideline compliance is not yet implemented at the national level, but it is among the stated goals of the NOP 2030, together with establishing a system to map patient pathways.

### **Implementation of the National Oncology Plan 2030 will improve patient involvement**

Some hospitals collect patient-reported data for internal purposes, including experience and satisfaction data. Within its strategic goals, the NOP 2030 aims to strengthen and consolidate patient involvement in treatment decision making, to promote patient-centred cancer care delivery

based on information collected through patient surveys, and to establish patient boards in hospitals.

## **5.3 Costs and value for money**

### **Cancer care costs are rising but are so far contained by various policy tools**

Given the ageing population in Czech Republic, the Institute of Health Information and Statistics predicts that cancer incidence will increase by up to 10 % over the next 10 years, and cancer prevalence by up to 30 % over the same period, resulting in a total cancer care costs increase of 10 % annually (MZČR, 2022).

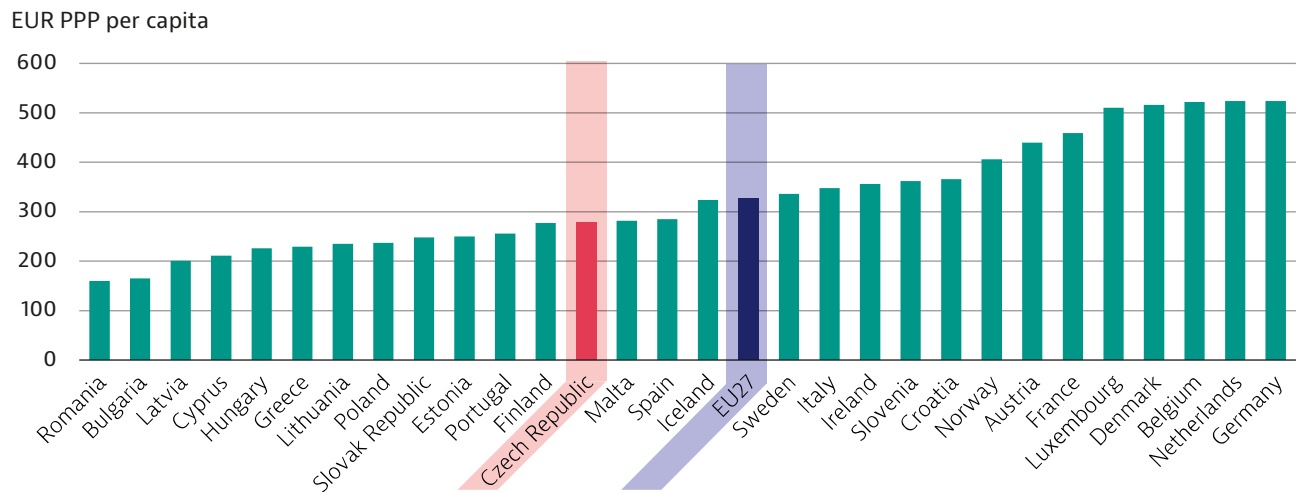
In 2018, the total cost of cancer in Czech Republic, adjusted for purchasing power parity (PPP), was 15 % lower than the EU average (Figure 12). However, cancer care spending represented 7 % of total health expenditure, which is slightly higher than the EU average of 6.3 %. Expenditure on innovative cancer treatments has increased gradually, reaching CZK 8.2 billion (EUR 335 million) in 2019 (representing 2 % of total HIF spending). In 2019, expenditure on innovative treatments for solid tumours grew by 16 % and for haemato-oncology innovative treatments by 33 % (ÚZIS, 2022b).

The increase in cancer drug expenditure is mainly driven by a growing number of treated patients. Indeed, innovative treatment costs for solid tumours per patient and per month of treatment have not changed much in Czech Republic since 2010, and there was a reduction of 5 % between 2016 and 2020 (ÚZIS, 2022b). The costs are kept under control by a legislation provision, which states that marketing authorisation holders are responsible for costs above the estimated budget impact considered during the process of setting temporary reimbursement for a given innovative drug.

To increase value for money, each patient must be consulted by an MDT before a decision to provide innovative treatment is made; otherwise, HIFs will not reimburse the treatment. The MDT consultation is itself reimbursed on a fee-for-service basis, separate from other cancer care reimbursement. This creates motivation for providers and cancer patients to use MDTs. Innovative treatments and orphan drugs can only be provided in accredited KOCs and haemato-oncology centres.



**Figure 12. Total per capita costs of cancer are below the EU average**



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

**The National Recovery Plan aims to strengthen the centralised oncology care network**

One focus of the National Recovery Plan (financed by EU funds) is strengthening cancer care. The objectives are to establish a National Institute for Cancer Research in Prague, and to develop oncological care in regions. A total of CZK 2 billion (EUR 81.6 million) will be invested in cancer care infrastructure, partly to support development of KOCs in some regions and to strengthen care coordination and co-operation between regions (see Section 5.1).

**5.4 COVID-19 and cancer: building resilience**

**Cancer screening was disrupted at the start of the pandemic and the backlog was not fully cleared**

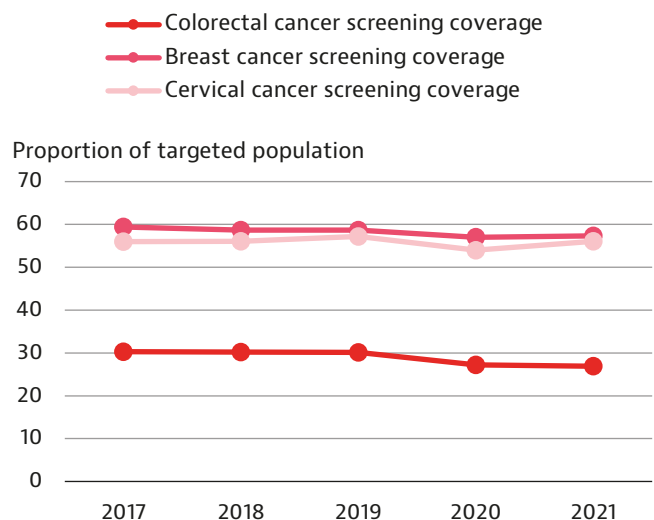
Screening uptake decreased dramatically during the first COVID-19 wave in 2020. Uptake of mammograms dropped by 19 %, cervical cancer screening by 21 % and FOBT for colorectal screening by 26 % in April-June 2020 compared to the same months in 2019 (ÚZIS, 2022c).

Despite rapid screening uptake during the third quarter of 2020, reaching higher participation in summer 2020 than summer 2019, the second COVID-19 wave from October 2020 caused further disruption to all three screening programmes, and participation did not recover to pre-pandemic levels until the second quarter of 2021. Overall, this led to lower screening programme coverage in 2020 and 2021 compared to 2019: the breast cancer screening rate fell by 1.5 percentage points in both years, colorectal cancer screening by 3 percentage points

in both years, and cervical cancer screening by 3 percentage points in 2020 and 1 percentage point in 2021 (Figure 13).

Lower screening rates generally result in tumours detected in later stage, requiring more demanding treatment and affecting survival rates. National data suggest a reduction in the share of early-stage tumours in newly detected breast cancer from 47.9 % in 2019 to 46 % in 2020 (ÚZIS, 2022b). To target missed screening appointments, an information campaign was prepared by the HIFs in 2022. Focusing on organised screening programmes, it aims to build awareness of the benefits of screening and timely treatment.

**Figure 13. Participation in screening programmes was lower in 2020 and 2021 than before the pandemic**



Source: ÚZIS (2022c).

### Cancer treatments were lower in 2020 than previous years, especially for surgery

Over 5 000 fewer new cancer patients were treated in 2020 than in 2019 (ÚZIS, 2022c), a reduction of almost 10 % from 2019. The number of cancer surgery had been increasing gradually in recent years, but fell by 11 % in 2020 compared to 2019 (ÚZIS, 2022c). Radiotherapy was newly administered to fewer than 1 100 patients (-6 %) and 8 % fewer interventional radiology procedures took place. Cytostatic treatments and ordinary chemotherapeutic treatments decreased by 2 % in 2020 compared to 2019.

### Guidelines were temporarily adapted to prevent COVID-19 infection

During the first wave of the COVID-19 pandemic in spring 2020, the Czech Society for Oncology released recommendations on temporary adjustments to clinical guidelines. These included possible changes of therapy, inclusion of new adjuvant chemotherapy to facilitate postponement of surgery and changes in chemotherapy protocols to avoid deep immunosuppression.

## 6. Spotlight on inequalities

The Czech health care system offers coverage to the whole population based on residence, with no financial barriers to accessing cancer care and services. Thanks to the generous SHI benefits package, innovative oncology treatments are widely available to patients, and recently implemented legislation has increased transparency by ensuring equal access to new treatment for cancer patients based on their needs. However, as in many other EU countries, wide disparities in cancer prevention, screening uptake, care quality and outcomes exist by sex, education level and region.

- Overweight and obesity and alcohol consumption are major risk factors for cancer in Czech Republic; behavioural risk factors are among the highest in the EU. Gender disparities are high: men are 38 % more likely to be overweight and obese and 48 % more likely to smoke daily than women.
- Social inequalities in risk factors for cancer, especially based on education, are also marked in Czech Republic. For smoking, people with higher education levels were almost three times less likely to smoke than those with lower education levels.
- Population-based cancer screening programmes for breast, cervical and colorectal cancers are well established and are accompanied by personalised invitations. Screening rates are well above the EU average for all three programmes, but inequalities exist by education level and across regions. Based on administrative data,

differences between regions in screening participation rates reach 31 % for breast cancer, 13 % for cervical cancer and 61 % for colorectal cancer. In addition, breast cancer participation rates among women with lower education levels are 18 % lower than those with higher education levels.

Centralisation of highly specialised cancer care into designated accredited centres in the last decade contributed to reducing treatable mortality, which fell by 18 % between 2011 and 2018, bringing Czech Republic's rate down to the EU average.

Multidisciplinary diagnostic teams are located at the comprehensive cancer and haemato-oncology centres, but there is room to increase their use in certain regions. In addition, ensuring equitable access to highly specialised cancer care across all regions is a challenge in Czech Republic; this relates in part to shortages of health professionals in some regions. Improving the availability of data on cancer patient pathways and time to treatment, and consolidating quality monitoring systems at the national level, will help to improve cancer care and reduce inequalities.

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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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