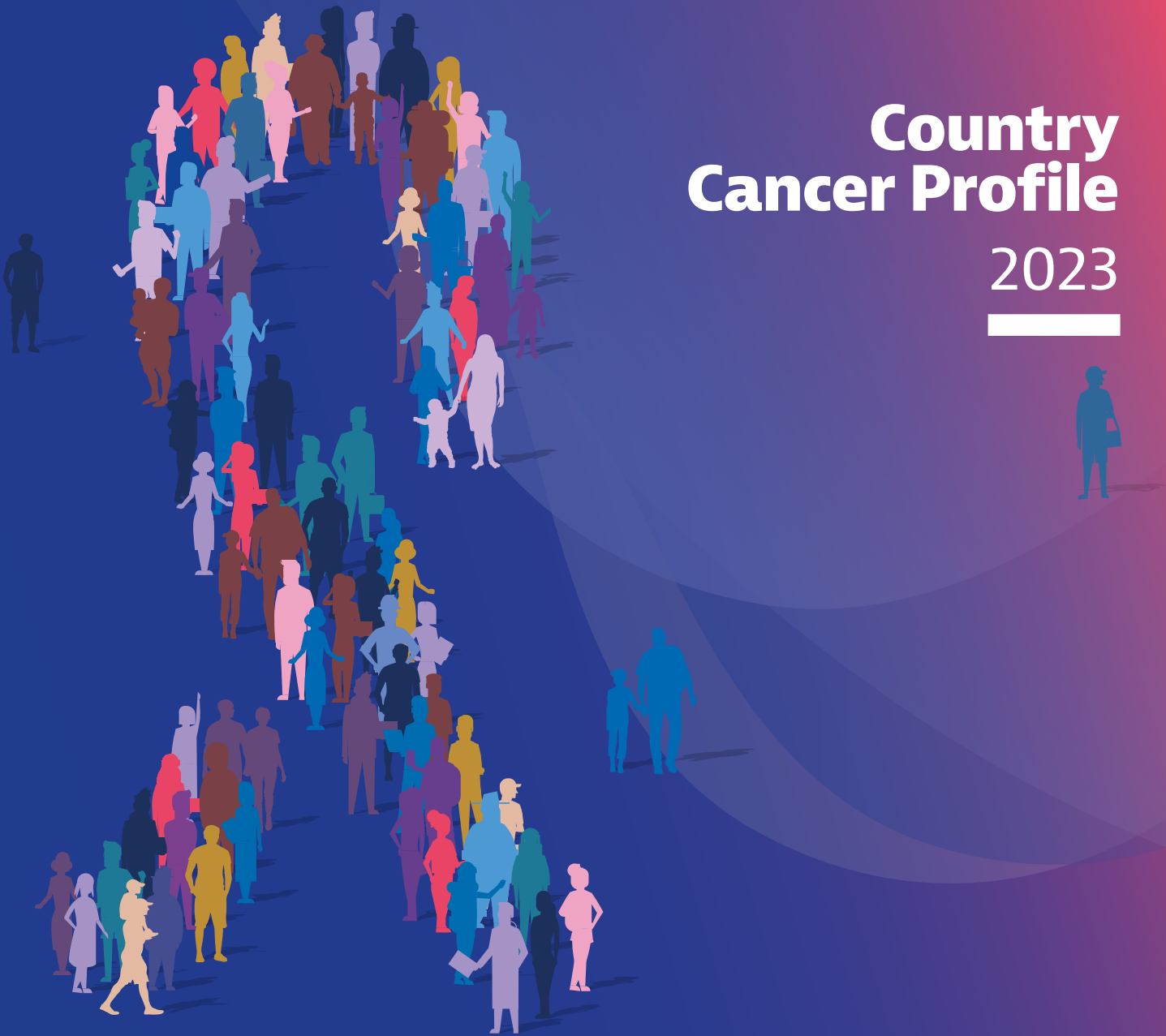




HUNGARY

# Country Cancer Profile

2023



### The Country Cancer Profile Series

The European Cancer Inequalities Registry is a flagship initiative of the Europe’s Beating Cancer Plan. It provides sound and reliable data on cancer prevention and care to identify trends, disparities and inequalities between Member States and regions. The Country Cancer Profiles identify strengths, challenges and specific areas of action for each of the 27 EU Member States, Iceland and Norway, to guide investment and interventions at the EU, national and regional levels under the Europe’s Beating Cancer Plan. The European Cancer Inequalities Registry also supports Flagship 1 of the Zero Pollution Action Plan.

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

### Data and information sources

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

Additional data also come from the World Health Organization (WHO), the International Agency for Research on Cancer (IARC), the International Atomic Energy Agency (IAEA), the Institute for Health Metrics and Evaluation (IHME) and other national sources (independent of private or commercial interests). The calculated EU averages are weighted averages of the 27 Member States unless otherwise noted. These EU averages do not include Iceland and Norway.

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

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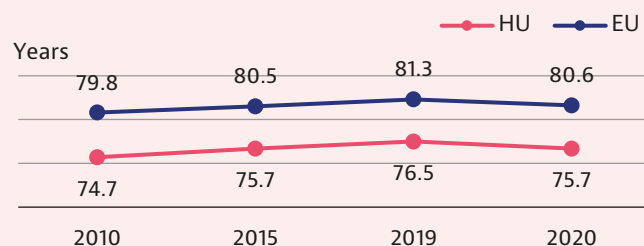
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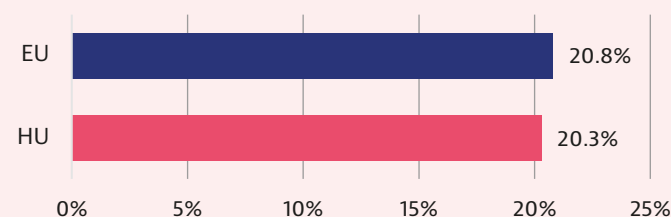
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### Summary of the main characteristics of the health system

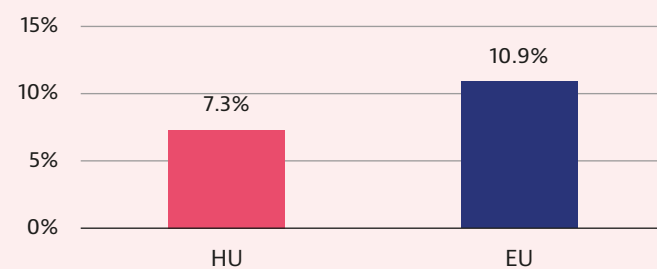
#### LIFE EXPECTANCY AT BIRTH (YEARS)



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

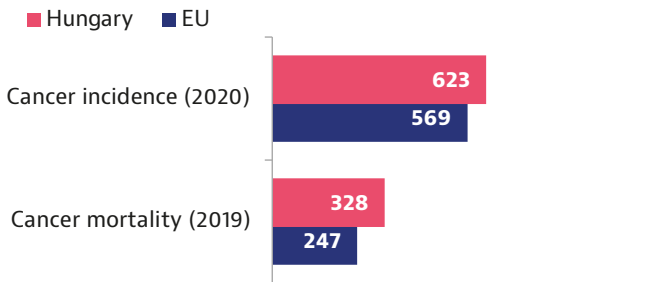


#### HEALTH EXPENDITURE AS A % OF GDP (2020)

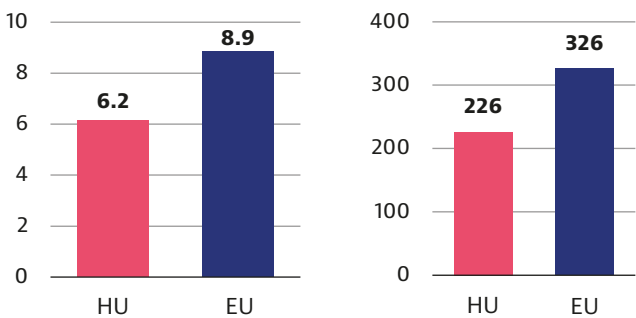
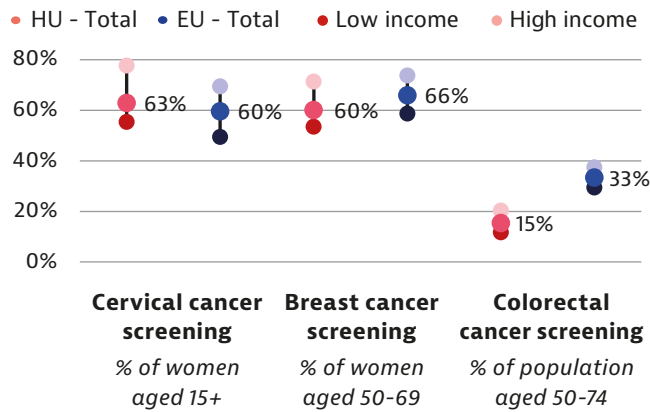
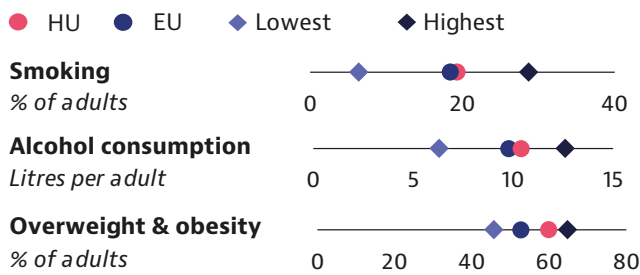


Source: Eurostat Database.

# 1. Highlights



Age-standardised rate per 100 000 population



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

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

## Cancer in Hungary

Estimated cancer incidence and mortality rates in Hungary were above the EU averages in 2019-2020. With 328 deaths per 100 000 population, Hungary registered the highest cancer mortality rate in the EU in 2019. The current National Cancer Plan aims to reduce cancer mortality by 10 % by 2030.

## Risk factors and prevention policies

Overweight, obesity and smoking rates are important risk factors for cancer in Hungary. Prevalence of smoking has, however, decreased substantially over the past decade, especially among men. A series of government policies may have contributed to this.

## Early detection

Hungarian participation rates in early detection activities are on par with the EU average for breast cancer, slightly above EU rates for cervical cancer and almost half of the EU average for colorectal cancer. Large differences in participation in screening services by income levels were seen in Hungary breast and cervical cancers screening.

## Cancer care performance

As in other EU countries, the rate of years of life lost per 100 000 population aged up to 75 years old due to cancer has been decreasing in Hungary since 2000, suggesting improvements in cancer care performance. However, a shortage of cancer care specialists persists at the regional and national levels, and density of radiation therapy equipment is low, which contributes to geographical disparities in access to care. In 2018, Hungary spent EUR 226 per capita on cancer care, which is 69 % of the EU average (EUR 326).

## 2. Cancer in Hungary

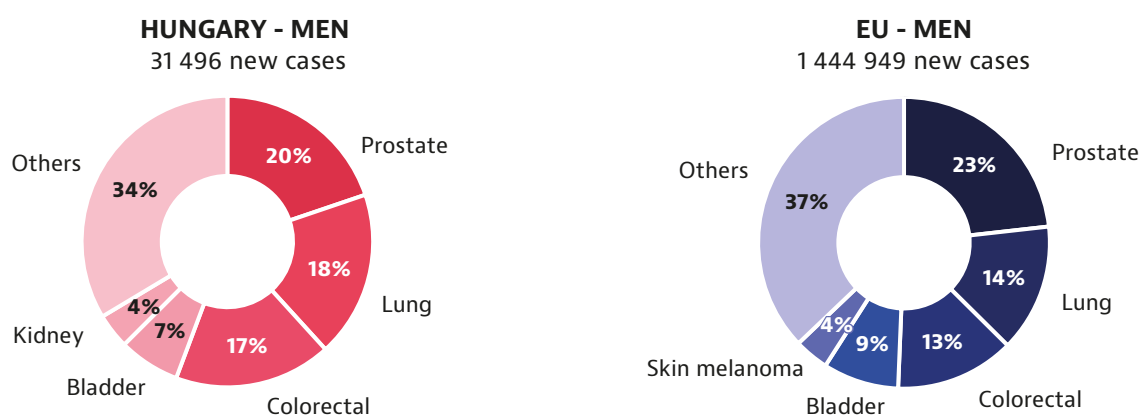
### Cancer incidence in Hungary is among the highest in the EU

According to European Cancer Information System (ECIS) of the Joint Research Centre based on incidence trends from pre-pandemic years, around 62 000 new cancer cases were expected in Hungary in 2020 (Figure 1) – approximately 623 per

100 000 people<sup>1</sup>. This exceeds the EU average (569 per 100 000) by 10 %. With around 102 lung cancer cases expected for every 100 000 Hungarians, the country had the highest incidence in the EU. Other leading cancer diagnoses included breast (134 cases per 100 000 population) and colorectal cancer (98 cases per 100 000)<sup>2</sup>. Gastric (stomach) cancer

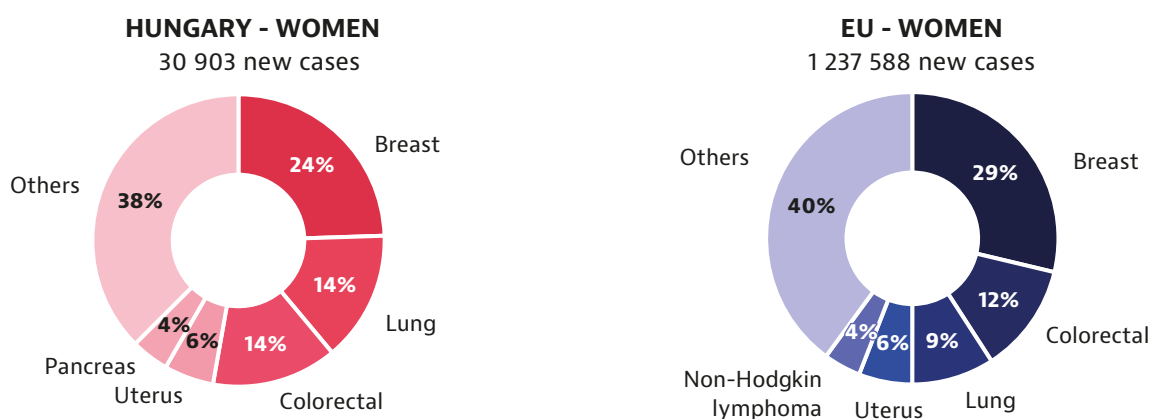
**Figure 1. Cancer incidence rates are above EU averages among both men and women in 2020**

#### Distribution of cancer incidence by sex in Hungary and the EU



#### AGE-STANDARDISED RATE (ALL CANCER)

**Hungary** 761 per 100 000 population  
**EU** 686 per 100 000 population



#### AGE-STANDARDISED RATE (ALL CANCER)

**Hungary** 540 per 100 000 population  
**EU** 484 per 100 000 population

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.

<sup>1</sup> According to preliminary data from the Hungarian National Cancer Registry, 66 434 cases (680 per 100 000 people) were reported in the country in 2020 (excluding non-melanocytic malignancies of the skin).

<sup>2</sup> Preliminary data from the Hungarian National Cancer Registry shows 145.5 breast cancer cases per 100 000 females, and 100.2 colorectal cancer cases per 100 000 people.

was expected to constitute 3 % of new cancer cases in men and 2 % in women in 2020, and skin melanoma was expected to constitute 2 % of new cancer cases in both men and women.

Breast cancer remains the most frequently diagnosed type for Hungarian women, followed by lung and colorectal cancers (Figure 1). In 2020, the estimated cancer incidence distribution among Hungarian men was similar to that among men in the EU, with prostate, lung and colorectal cancers the three most commonly diagnosed. Prostate cancer incidence remained below the EU average, but incidence rates for lung and colorectal cancers were higher than the EU averages. In 2020, 138 lung cancer cases per 100 000 men and 136 colorectal cancer cases per 100 000 men were expected in Hungary.

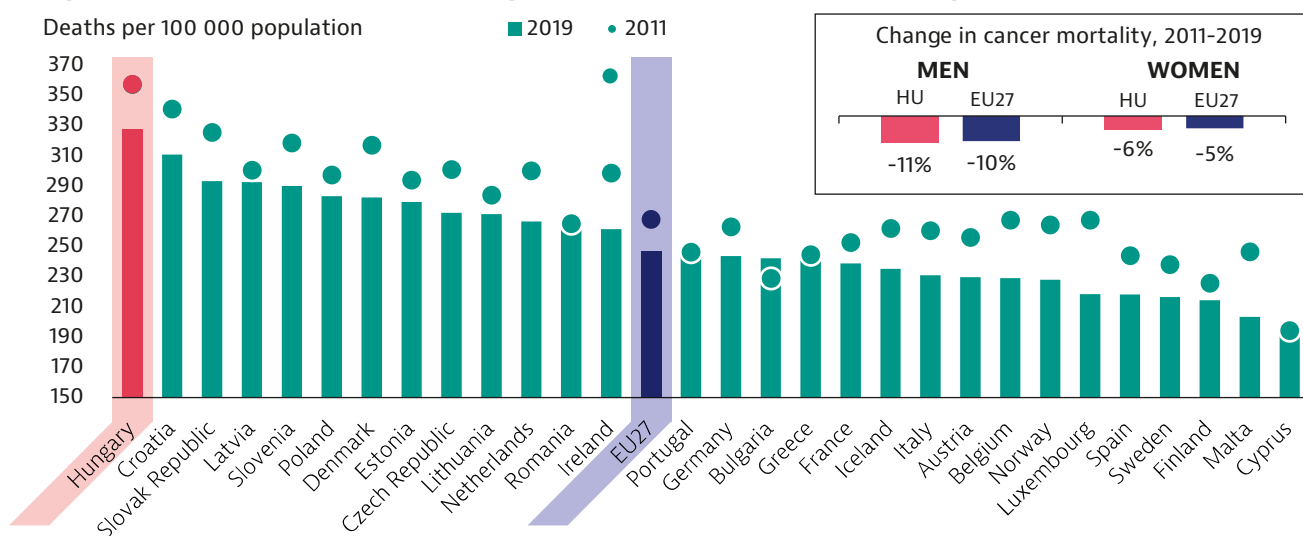
According to the Hungarian National Cancer Registry, in 2020, the most frequently diagnosed cancer type among men was lung cancer with 5615 registered cases (120 per 100 000 men). It was followed by colorectal cancer with 5421 cases (116 per 100 000 men), and prostate cancer (with 3787 cases).

### Cancer mortality in Hungary was the highest in the EU in 2019

Overall cancer mortality was the highest among EU countries in 2019 (Figure 2). The country registered 328 cancer-attributable deaths per 100 000 population, while the EU average was 247 per 100 000 population.

Differences in mortality by sex and education were significant. In 2013, men (488 per 100 000) were much more likely to die of cancer than women (269 per 100 000). Among people aged 25-65 years, women with lower education levels were more than twice as likely, and men with lower education levels were four times as likely to die of neoplasms as their counterparts with higher education levels (220 compared to 85 per 100 000 women and 424 compared to 91 per 100 000 men). Differences by educational attainment persisted in older age groups, albeit at lower levels.

**Figure 2. Mortality by cancer in Hungary was 33 % above the EU average in 2019**



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

High levels of cancer-attributable mortality can be explained by a combination of factors, including higher prevalence of risky health behaviours among the population (see Section 3), higher post-mortem cancer diagnosis (about one in three patients who died in hospitals in 2019 underwent autopsy) and lower performance of early diagnosis and cancer care (see Sections 4 and 5). Fostering health literacy among the population and strengthening screening services are among

the main efforts of the government to reduce the burden of cancer in Hungary.

### Lung and colorectal cancers are by far the leading causes of cancer mortality

Lung, colorectal, breast and pancreatic cancers are the leading causes of death by cancer in Hungary (Figure 3). In 2019, the country registered the highest mortality per 100 000 population in the EU for all four. Lung cancer mortality (84 deaths per 100 000 people) was much higher than the EU



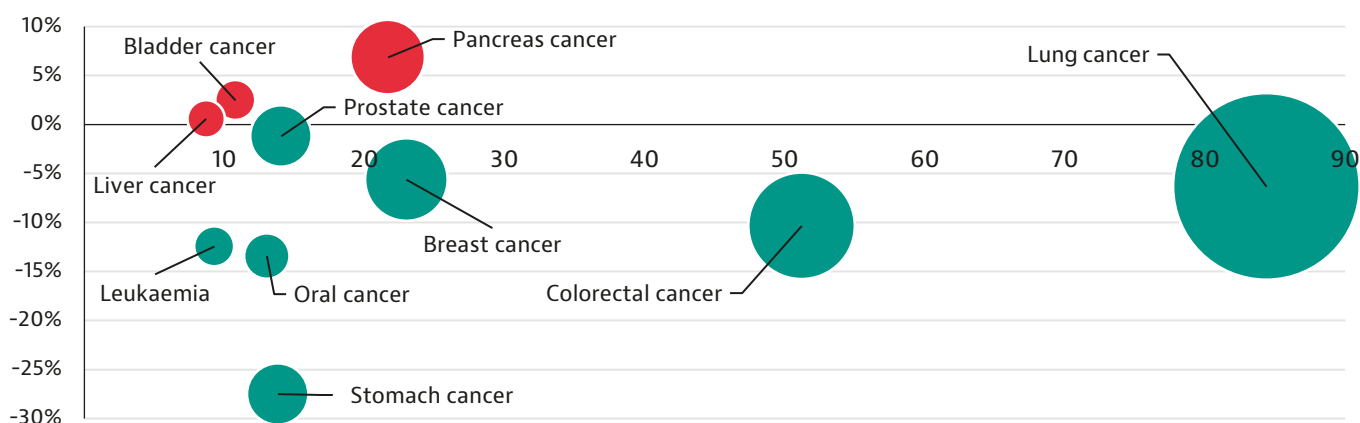
average (50 deaths per 100 000), and colorectal cancer mortality (51 deaths per 100 000) was 76% higher than the EU average (29 deaths per 100 000). The recently introduced colorectal cancer screening programme and lung cancer screening trials (see Section 4) aim to improve outcomes.

In 2019, gastric (stomach) cancer accounted for an overall mortality rate of 14 per 100 000 population in 2019, which is higher than the EU average (10 per 100 000 population). Skin melanoma accounted for an overall mortality rate of 4 per 100 000 population.

Since 2011, cancer mortality has decreased in Hungary for all cancer types except pancreas, bladder and liver cancers. Pancreatic cancer mortality increased by 7 % between 2011-2019 (Figure 3). This was the largest increase in mortality associated with a cancer type in 2011-2019 in Hungary, while the EU average mortality remained stable. The largest decline in cancer mortality (a 28 % fall during 2011-2019) was for stomach cancer.

**Figure 3. Mortality for most cancer types decreased in the past decade in Hungary**

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



Age-standardised mortality rate per 100 000 population, 2019

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

**Centralised treatment protocols contribute to high overall survival rates for paediatric cancers**

The Hungarian Childhood Cancer Registry ensures population-based registration of cancer incidence and mortality in children aged under 15 years. Although childhood cancer represents less than 1 % of all malignant diseases diagnosed in the country, its incidence showed a slowly increasing trend in 2001-2015. In 2020, the age-standardised incidence rate in children under 15 years was 15 per 100 000, which is similar to the EU average. Centralised treatment protocols based on the consensus of the centres of the Hungarian Paediatric Oncology Network contribute to survival rates that exceed 70 % for solid tumours (Jakab et al., 2020).

**The current National Cancer Plan aims to reduce cancer mortality by 10 %**

Hungary’s current National Cancer Plan has been in force since 2018 and outlines the country’s strategy against cancer until 2030. Its

overall objective is a 10 % reduction in cancer mortality by 2030. The Plan’s priorities include continuation of efforts against behavioural risk factors and expansion of early detection activities. It also emphasises the need to move towards organ-specific centralisation and to modernise cancer diagnostics and treatment. The latter element includes additional funding for molecular pathology and for refurbishment of radiotherapy equipment. Steps towards wider application of (targeted) immunotherapy and more modern solutions in oncology surgery are also detailed. The Plan describes specific objectives, actions and measures for general psycho-oncological support and stresses the need to leverage telemedicine and other digital solutions in cancer care.

Policies concerning labour market reintegration and the right to be forgotten (a right that gives individuals the ability to exercise control over their personal data, including health information, by deciding what should be accessible to the public)

have not been formulated specifically in the context of cancer care. However, policies guiding

reintegration of all recovered patients (including people with a history of cancer) are in place.

### 3. Risk factors and prevention policies

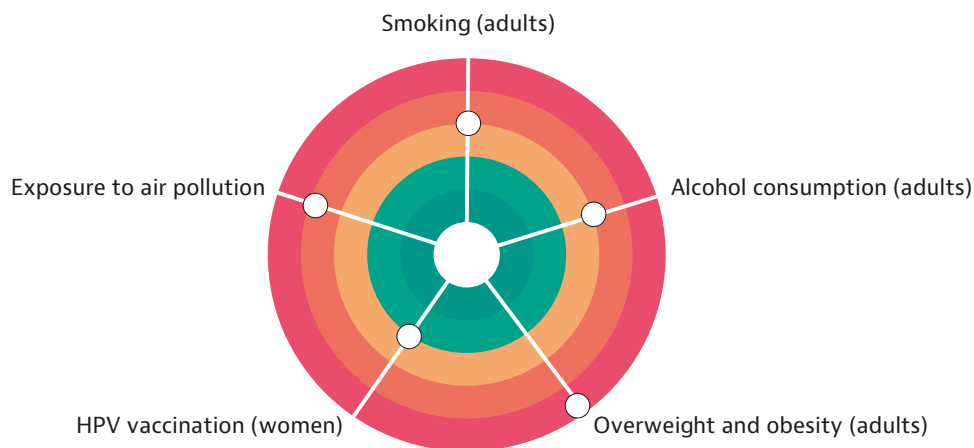
#### Behavioural risk factors are more prevalent in Hungary than across the EU

Hungary performs relatively poorly on smoking, alcohol consumption, overweight, obesity and exposure to air pollution compared to other EU countries, while the country performs relatively better on HPV vaccination (Figure 4). In 2019 in Hungary, poor diet (contributing to 24 % of deaths vs. an EU average of 17 %) and tobacco consumption (contributing to 21 % of deaths vs. an EU average of 17 %) played key roles in mortality according to the Institute for Health Metrics and Evaluation. Similarly, 7 % of Hungarian mortality was attributable to both alcohol consumption (vs. an EU average of 6 %), while the impact of low physical activity on mortality was on a par with the EU average (2 %). Recent policies addressing the two most prevalent risk factors have been implemented. In 2020, 3.7% of total health expenditure was dedicated to prevention – a share that exceeds the EU average of 3.4 %.

#### Obesity and overweight are growing problems, especially among people with lower education levels

Obesity and overweight are increasingly prevalent health problems in Hungary. More than half of Hungarians (60 %) were either obese or overweight in 2019, compared with the EU average of 53 %. This represents an 11 % increase since 2014. Obesity and overweight are most prevalent among men and older people: 67 % of Hungarian men and 73 % of older Hungarians are affected. The proportion of Hungarians with lower education levels experienced the most striking rise in rates of obesity and overweight, with an increase of 23 %.

**Figure 4. Hungary performs relatively poorly on all risk factors, except for HPV vaccination**



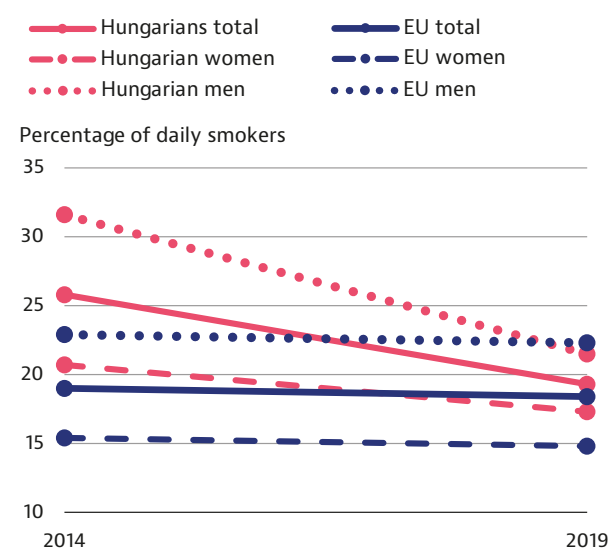
Note: The closer the dot is to the centre, the better the country performs compared to other EU countries. No country is in the white “target area” as there is room for progress in all countries in all areas.

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), WHO for human papillomavirus (HPV) vaccination (through the WHO/UNICEF Joint Reporting Form on Immunization) (2020), and Eurostat for air pollution (2019).

## Overall reductions in smoking rates were driven by changing smoking habits among men

In 2014, Hungarians were among the heaviest smokers in the EU, with one in four reportedly smoking daily. The situation had improved by 2019, with about one in five Hungarian reporting daily smoking habits, although the percentage of daily smokers (19 %) was still slightly above the EU average of 18 %. The reduction in 2014-2019 was largely driven by men changing their smoking habits: the proportion of men smoking daily in 2014 was 32 %, while in 2019 it was 21 %<sup>3</sup>. This trend also reduced the marked gender gap in smoking habits (Figure 5).

**Figure 5. A marked reduction in daily smoking habits among Hungarian men narrowed the gender gap**



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

Inequalities by income and educational attainment were pronounced. 25 % of Hungarians with lower education levels were daily smokers in 2019, almost three times as many as those with higher education levels (9 %). This is the largest recorded education gap in smoking reported in the EU. Meanwhile, 30 % of Hungarians on lower incomes and 13 % on higher incomes reported daily cigarette smoking, creating another significant gap.

A series of government measures have contributed to the overall reduction in the proportion of daily smokers (Joó et al., 2018). In 2013, the government reorganised tobacco retail sales and reduced the number of points of sale. Between 2012-13, restrictions on smoking in public places and

warning labels about health risks on tobacco products were also implemented, and a plan to introduce compulsory plain packaging is under consideration. A gradual increase of excise duties on tobacco products from 2010 also played a role.

However, use of novel nicotine and tobacco products is on the rise, especially among teenagers. The share of people aged 13-15 years who had consumed vaping products in the last 30 days rose from 9 % in 2013 to 12 % in 2020. This may be explained in part by the fact that these products are not yet covered by the same tax regime and regulations as traditional tobacco products, although recent regulations have aimed to restrain the distribution of e-cigarettes containing nicotine.

## New cancer cases associated with alcohol consumption are among the highest in the EU

In 2020, an estimated 17 new cancer cases per 100 000 population were attributable to alcohol consumption in Hungary, according to IARC. This is among the highest levels in the EU – second only to neighbouring Slovakia. The gender gap is significant: more than three times as many cancers are attributable to alcohol consumption among men (27 per 100 000) than women (9 per 100 000).

Hungarians were not among the heaviest drinkers in the EU in 2020, although consumption (10.4 litres of pure alcohol on average per capita) was above the EU average of 9.8 litres (Figure 6). However, the rate of hazardous alcohol consumption among men was above the EU average: in 2014, the proportion of Hungarian men reporting an average consumption rate of more than 40 g daily was 6 %, which is among the highest in the EU and nearly twice the EU average (3 %). Hungarians with lower education (4 %) and lower income (5 %) levels were also more likely to report hazardous alcohol consumption than those with higher education (1.7 %) and higher income (1.8 %) levels.

## Exposure to air pollution is higher in Hungary than in the EU

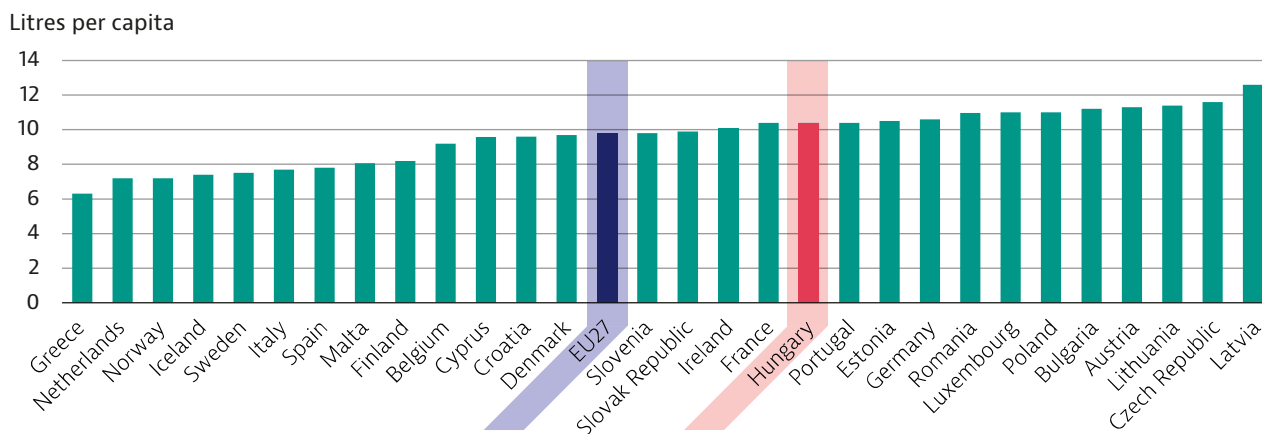
In 2019, exposure to PM<sub>10</sub><sup>4</sup> in Hungary reached 24.4 µg/m<sup>3</sup>, which is higher than the EU average (20.5 µg/m<sup>3</sup>). Hungary also had a higher concentration of PM<sub>2.5</sub> than in the EU (14.4 µg/m<sup>3</sup> vs. 12.6 µg/m<sup>3</sup>). According to the Institute for Health Metrics and Evaluation, ozone and PM<sub>2.5</sub> exposure accounted for an estimated 7 % of all deaths in Hungary in 2019, a rate higher than the average across the EU (4 %).

<sup>3</sup> These trends are confirmed by Weber (2019), which shows that between 2000 and 2015, male smoking-attributable mortality declined in Hungary while among women it increased significantly.

<sup>4</sup> 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



**Figure 6. Hungarians consume more alcohol than the EU average**



Note: The EU27 average is unweighted (calculated by the OECD).  
Sources: OECD Health Statistics 2022; WHO GISAH.

**From 2020, boys are also eligible for the human papillomavirus immunisation programme**

With approximately 23 cases per 100 000 women, cervical cancer is the sixth most common cancer among Hungarian women, and the third most common among women aged 15-44 years (ICO/IARC Information Centre on HPV and Cancer, 2021). Vaccine-preventable HPV infection is an acknowledged cause of cervical cancer, and may also be a relevant factor in other anogenital cancers. Voluntary HPV immunisation has been available to Hungarian girls aged 13 years free of charge since 2014, with a guardian’s consent. From the 2020/2021 academic year, the HPV immunisation programme was broadened to include boys of the same age. In that year, 80 % of eligible girls and 66 % of eligible boys received HPV immunisation (Kásler, 2022).

**The Hungarian government aims to encourage healthier lifestyles**

The Three Generations for Health Project, implemented in the framework of the 2019-2022

national health programmes, aims to reduce prevalence of behavioural risk factors. From a total budget of nearly HUF 6 billion (EUR 16.5 million), by 2020 the programme had awarded funding to 143 general practitioner (GP) practices and municipalities to carry out activities encouraging healthy diet, regular physical activity and smoking cessation. Furthermore, specific health promotion programmes target socioeconomically disadvantaged areas (see Section 4).

To incentivise lower consumption of food and beverage products with proven health risks, the Public Health Product Tax was introduced in 2011. It was found to have contributed to a 29 % increase in the price of such products and a 27 % decrease in sales. In addition, it prompted 40 % of responding manufacturers to change their product formula (National Institute of Pharmacy and Nutrition, 2019).

## 4. Early detection

**Three nationwide cancer screening programmes are in place in Hungary**

To facilitate use of early detection services, the Hungarian government instituted nationwide population-based screening programmes (screening offered to a specific at-risk target population) for three types of cancers. The breast cancer screening

programme, initiated in 2001, targets women aged 45-65 years. The programme for cervical cancer started in 2003 and targets women aged 25-65 years. In 2018, in line with the new National Cancer Plan (see Section 2), a screening programme was introduced for colorectal cancer among those aged 50-70 years.

The programmes are fully covered by compulsory health insurance. For breast and cervical cancer screening, the target population receives letters containing individual invitations, and for breast cancer screening the letter also provides fixed appointment dates. Swift communication and information sharing between GPs and screening centres is ensured by an information system. This also supports GP referrals by providing updated information on screening. To increase participation in screening services, financial incentives for GPs are available through indicator-based performance assessments for mammography. Data links between the screening registry and national registries (including the National Cancer Registry) facilitate the functioning of national early detection programmes.

### Women with higher education levels are more likely to use breast cancer screening services

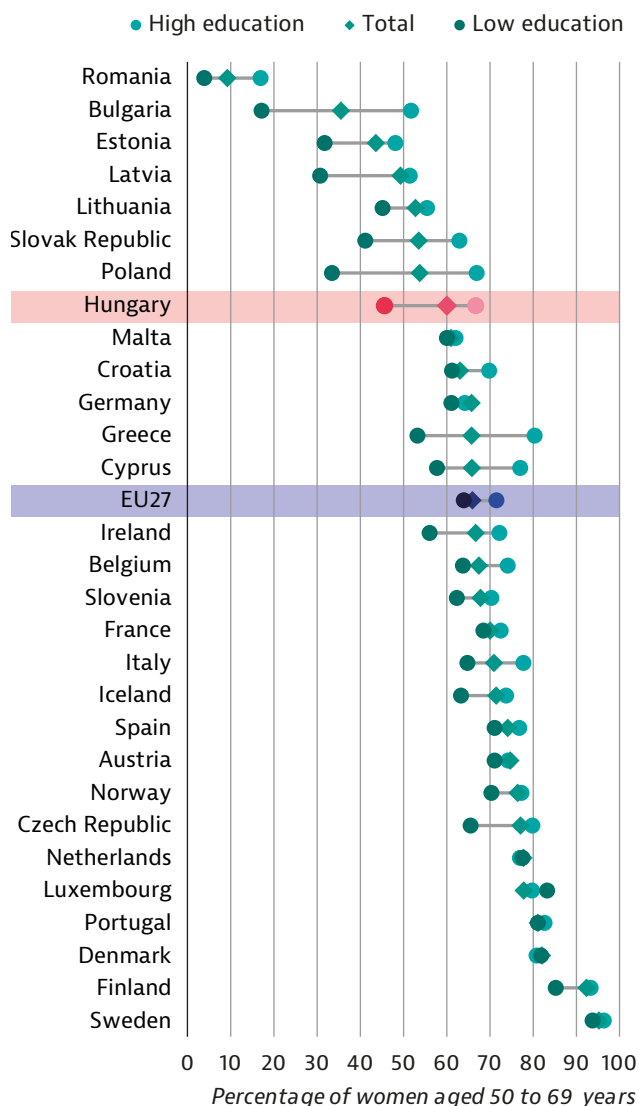
In 2019, 60% of Hungarian women aged 50 to 69 years reported having had breast cancer screening within the recommended two years before the survey, lower than the EU average (66%). National estimates show that more than half (62%) of women targeted by the national screening programme (45-65 years) had been screened. According to a recent report (Hungarian Central Statistical Office, 2021), this proportion had not changed substantially since 2014.

Non-financial barriers may have a significant influence on participation rates in breast cancer screening, as differences by education are large. Women with higher education levels (67%) were 50% more likely as those with lower education levels (46%) to take advantage of screening (Figure 7). Differences in uptake among women on higher (71%) and lower (53%) incomes were not as pronounced but remained substantial.

### Cervical cancer screening rates increased in Hungary while the EU average decreased

In 2019, Hungary reached an overall cervical cancer screening participation rate of 63%, exceeding the EU average (60%). This was the result of a reduction in the EU average from 61% and a slight increase in Hungary (from 59%) since 2014. Again, breaking down overall participation rate by education levels reveals the most marked inequalities. In 2014, it was more than twice as likely for women with higher (77%) than lower (36%) education levels to have had a cervical smear test in the preceding three years. This inequality persisted, although the gap decreased slightly, between 2014 and 2019 (Figure 8).

**Figure 7. Women with higher education levels are 50% more likely to attend breast cancer screening**



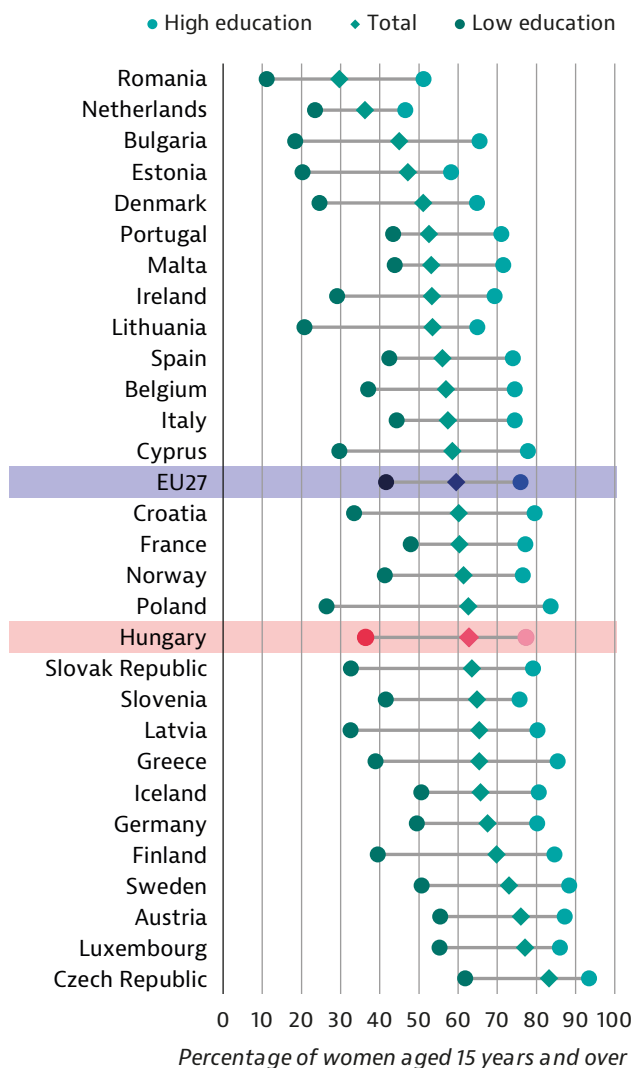
Note: The EU average is weighted (calculated by Eurostat). The figure reports the percentage of women aged 50 to 69 years who reported receiving a mammogram in the past two years. Source: Eurostat Database (EHIS). Data refer to 2019.

However, inequalities by income quintile in cervical cancer screening uptake remain pronounced. Recent participation in cervical cancer screening was reported by only 55% of those on lower incomes but 78% of those on higher incomes.

### Hungarians use colorectal cancer screening services much less than the EU average

In 2019, survey data reported a participation rate of 15% in colorectal cancer screening activities in the preceding two years among the population aged 50 to 74 years, which is significantly lower than the EU average (33%). This pronounced disparity is consistent through age, sex, education and income. Aligned with EU average trends, Hungarians with higher education (20%) and income (20%) levels

**Figure 8. Cervical cancer screening rates are higher in Hungary than in most other EU countries**



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.

were somewhat more likely to have undergone screening than those with lower education (9 %) and income (12 %) levels.

**Fostering health literacy is at the heart of the government’s efforts to address inequalities**

In 2014, the government instituted a network of health promotion offices under the National Public Health Centre to coordinate prevention and health promotion efforts (Egészségvonal, 2021). About two thirds of the 113 offices in operation are in socioeconomically disadvantaged communities. Following guidelines from the National Institute of Oncology, in co-operation with local authorities, the National Public Health Centre occasionally organises opportunistic screening activities using mobile units, combined with health promotion activities. The Health Care on your Doorstep initiative offers screening services free of charge close to people’s homes, which is a priority of the National Cancer Plan for 2019-2022.

**Trials to implement a screening programme for lung cancer are ongoing**

Hungary has the highest lung cancer mortality in the EU (see Section 2), so the National Cancer Plan aims to introduce a lung cancer screening programme for at-risk groups. An implementation trial using low-dose computed tomography (CT) scanning was concluded in 2021, with the participation of 10 oncology departments across the country. Within this programme, heavy smokers or formerly heavy smokers aged 50 years and over were invited to take part in screening, free of charge.

## 5. Cancer care performance

### 5.1 Accessibility

**Access to new diagnostic and treatment procedures has improved significantly in Hungary**

During the 2018-2022 government term, improvement of cancer care was prioritised. Several initiatives were implemented under the National Cancer Plan – notably allocation of funds

for more widespread application of new diagnostic and treatment procedures. These include molecular pathology tests, modern radiotherapy procedures (such as brachytherapy) and robot-assisted surgery. In Hungary, these procedures have become available in publicly funded health care in recent years. Thus, no oncological tests or therapies in the country can only be accessed at private providers.

### New drug treatments are authorised and covered faster than procedures requiring equipment

In general, drug treatments that have already been authorised by European authorities will be authorised within 3-6 months in Hungary. This is partly due to the mobilisation of manufacturers to accelerate the approval process. By contrast, for procedures that require new, high-cost equipment, integration into the system, the process is slower. Historically, providers have received limited public financing for the purchase, maintenance and eventual renewal of necessary equipment. However, recently, additional public funding have been made available for this purpose: several centres at the county level have received funds to replace radiation therapy equipment that is over 10 years old. In addition, a new radiotherapy centre has been established – the fourteenth in the country.

After authorisation, new medicines, medical devices and other preventive medical procedures are subject to a health technology assessment, which includes an evaluation of evidence on clinical efficacy and safety, as well as analyses of cost-effectiveness and budget impact. The assessment is carried out by the National Institute of Pharmacy and Nutrition, supported by input from providers and experts.

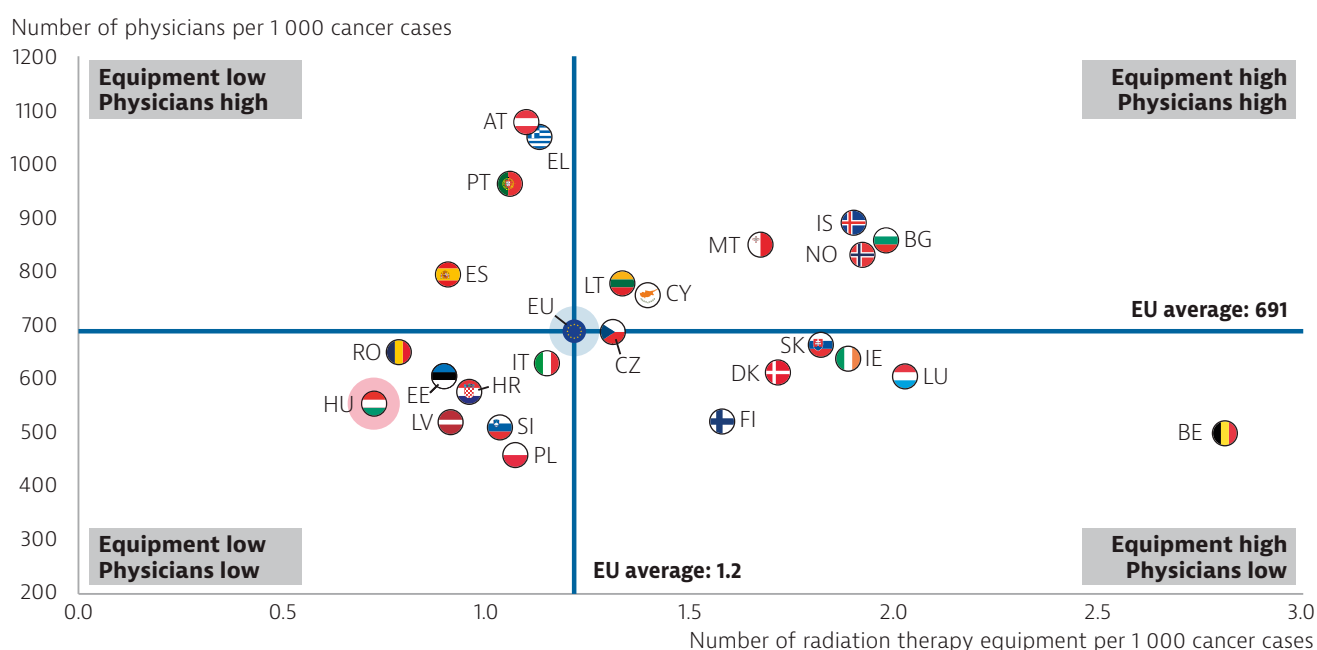
### Maximum waiting times are implemented for diagnostic imaging

A law came into force in 2015 stipulating that all patients with suspected cancer must have a CT or magnetic resonance imaging (MRI) scan within 14 days of referral. This maximum waiting time for diagnostic imaging was a very significant measure to improve timely access to cancer care. However, the law does not stipulate that evaluation of the scan will also take place during this time: it may take an additional 4-10 days. The National Cancer Plan includes further steps to improve timeliness, mostly aimed at lifting funding limits for laboratory and diagnostic imaging procedures in specific centres.

### Human resources shortages are the main issue in cancer care, especially in rural areas

Regional and county centres face a shortage of oncology specialists. Only the National Institute of Oncology has enough oncologists with the necessary qualifications, radiotherapists, radiologists and resident doctors. Additionally, perceived reductions in motivation among cancer care professionals further exacerbate the challenges created by this shortage. Overall, Hungary reported lower radiation therapy equipment (0.7 per 1 000 cancer cases vs. an EU average of 1.2) and lower physician density than other EU countries (547 per 1 000 cancer cases vs. an EU average of 691) (Figure 9).

**Figure 9. Hungary had lower physicians and radiation therapy equipment than in other EU countries**



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). Data for Hungary refer to 2017. Source: Eurostat and OECD Health Database (data refer to 2020, or nearest year).

In 2020, the government brought in a reform to the employment status of doctors (Gaál et al., 2021). While this legislation prescribed a significant salary increase and criminalised informal payments, it did not set minimum requirements for performance or care quality. This has the potential effect of reducing performance, although the impact on oncology care requires further research.

The human resources shortages in oncology centres led to follow-up of oncology patients shifting to district outpatient oncology units and GPs. However, these professionals also face numerous challenges: an even more pronounced shortage of human resources is compounded by an ageing workforce. Additionally, Hungarian professionals in these segments of the health care system are less trained in oncology. These problems are more prominent in rural areas, especially in the least developed micro-regions.

### **Palliative care needs to be strengthened in Hungary**

Only one third of Hungarian patients in need of hospice care receive it. Moreover, they receive it only for a short period (less than a month, on average). This is due in part to low bed capacity and limitations set by regulations that do not permit simultaneous funding of active oncology treatment and hospice care for a patient.

An additional challenge in leveraging palliative care is raising awareness among the population, which remains relatively low. Although patient pathways are well defined, patients – and sometimes even oncologists and GPs – lack a thorough understanding of the functioning of the referral and booking system. This issue is particularly relevant in the case of home hospice care, and is more serious in the least developed regions of Hungary. Although the National Cancer Plan includes plans for development of outpatient and inpatient capacities for onco-rehabilitation care, these are not currently priorities.

## **5.2 Quality**

### **The Hungarian cancer care system is regionally centralised**

In Hungary, cancer care is centralised in county, regional and national centres (Figure 10). All 19 counties have county centres, which are responsible for provision of care for high-incidence cancers. These centres work in a multidisciplinary manner, and 14 also operate as radiotherapy centres. In the four regional centres, multidisciplinary teams provide comprehensive care for

medium-incidence cancers. Rare cancers are treated in the Budapest-based National Institute of Oncology. The responsibilities of the Institute also include research, provision of continuing medical education and coordination of professional guideline development. It also operates the National Cancer Registry.

Procedures that have become available recently (see Section 5.1) are also linked to these levels of care. Molecular pathology services are available in the National Institute of Oncology and in the four regional centres. Brachytherapy is provided by the county oncological centres, while robot-assisted surgery is available at the National Institute. Primary, outpatient and inpatient care providers at the municipal level are responsible for referring patients to the appropriate centre. Providers at this level also contribute to primary prevention and early detection efforts, under the guidance of the National Public Health Centre. Their responsibilities also include referral of cancer patients to providers of rehabilitative and palliative care. Inpatient and home hospice care are provided separately, and both GPs and oncologists can refer patients to hospice care.

### **The National Cancer Plan sets out more centralisation to improve efficiency**

According to the National Cancer Plan, centralisation should be pursued further. The next stage would be organ-specific grouping of care, guided by the annual number of cases treated for each cancer type within the regions of the country already defined. Thus, these efforts would not replace but complement regional centralisation. The aim is to ensure that each type of cancer care is offered by a provider with the most experienced professionals in that care in the region.

### **Rollout of and access to clinical trials is dependent on industry-led trials**

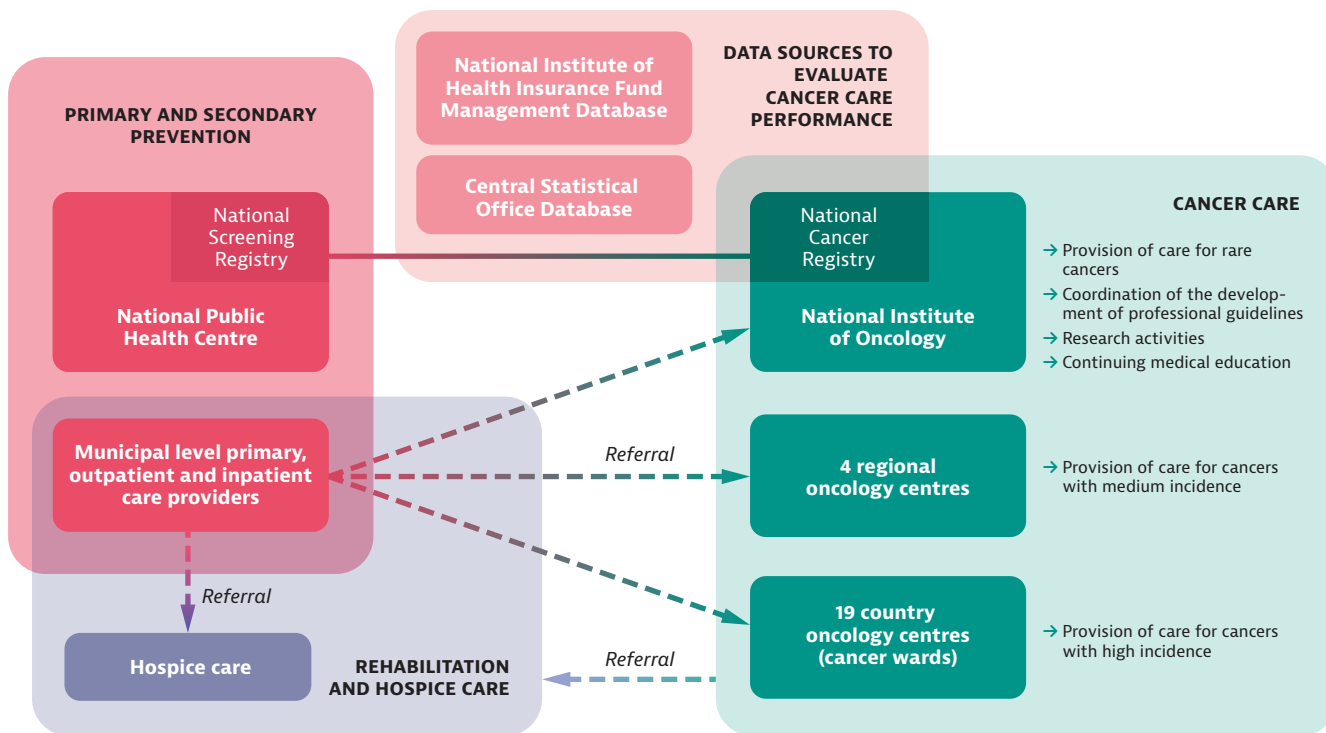
Clinical trials for new cancer drugs are not commonly initiated domestically. However, it is established practice to offer Hungarian patients treated in national and regional centres the opportunity to become involved in available large-scale trials initiated in the country.

### **Implementing a comprehensive cancer centre was a key step in measuring care quality**

The National Institute of Oncology first met all the necessary quality standards of the Organisation of European Cancer Institutes in 2013, becoming a comprehensive cancer centre. Thus far, it is the only such institution in the Central Eastern European region.



**Figure 10. Hungarian cancer care is regionally centralised**



Source: Authors.

However, efforts to measure cancer care quality have not been consistent nationally and are still limited. For example, a systematic clinical audit system is yet to be implemented. Also, collecting performance measures on outcomes and care experiences from the perspective of people with cancer is in its infancy.

Meanwhile, certain quality controls happen because the diagnostic and treatment algorithms for the most expensive diseases are defined by law as financing protocols. This means that the health insurance provider can check whether care has been provided according to the financing protocols, and withdraw funding if discrepancies are found.

**Hungarians’ years of life lost due to cancer suggest need for quality improvement**

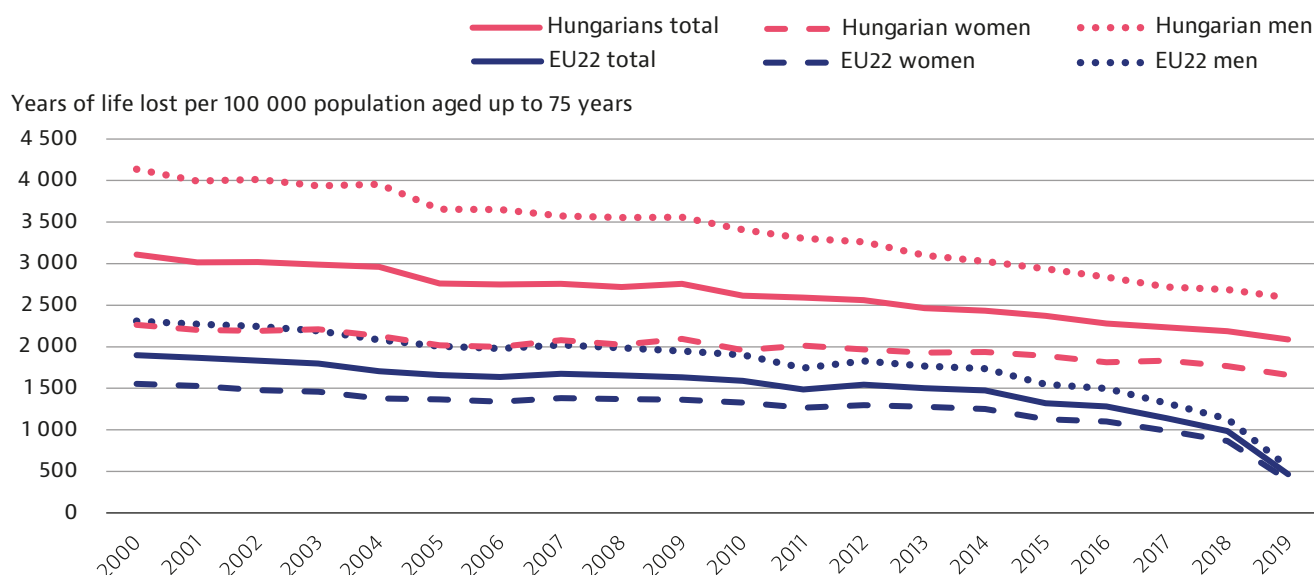
The years of life lost (YLL) due to cancer shows a decreasing trend in Hungary since 2000, as in other EU countries. However, in 2017, the YLL rate in Hungary (2 235 per 100 000 population aged up to 75 years) was nearly two times higher than the EU average (1 139 per 100 000) (Figure 11). YLL rates for lung and colorectal cancers were more than double the EU averages, which cannot be explained simply by differences in incidence (see Section 2). Explanatory factors may include onset at an earlier age, diagnosis at later stages, less effective treatment or differences in data collection and registration compared to other countries.

**New funding aims to harness data to enhance cancer care quality measurement**

As a consequence of the limited efforts to measure care quality, few indicators are available on the performance of cancer care in Hungary. However, the country has several databases that may be valuable sources for such measurement. The Hungarian Central Statistical Office collects data on morbidity and mortality in the population; the National Institute of Health Insurance Fund Management receives data on provision of health care, including the date, place, care level, type of and rationale for clinical interventions; and the National Cancer Registry focuses on the registration of newly diagnosed cancer patients, follow-up and care monitoring.

These databases can be linked at the patient level, which presents an exceptional opportunity to extract cancer care quality indicators. The obstacle has been a lack of financial and human resources. However, in recent years, a specific budget has been allocated for the first time for the provision of necessary resources to harness this opportunity.

**Figure 11. Despite a steady reduction, potential years of life lost exceed the EU averages**



Source: OECD Health Statistics (2022).

**Recent five-year survival data fill an important gap among scarce care quality indicators**

The National Cancer Registry has collected cancer-related data since 2000. It receives, validates and aggregates cancer cases reported by Hungarian hospitals according to numerous variables, including sex, age group, diagnosis, stage and region. Additional funds will foster the development of quality indicators. Data such as five-year survival rates by cancer type are being generated for patients diagnosed with cancer between 2011 and 2015. To provide more indicators of care quality, the Registry plans to undertake analyses by cancer stage at diagnosis, after validation of the relevant data.

The first published results of these analyses compared survival trends for selected cancers in Hungary from the 2011–2015 period to the survival trends of the 2001–2005 period. Results show that survival improved for colorectal, breast and prostate cancer between the two periods, cervical cancer did not change significantly, while lung cancer survival slightly declined. The results also highlight that survival improved in earlier stages for almost every studied tumour type in the later period, while in advanced stages improvement was not reported (Kenessey et al., 2022).

To cultivate systematic clinical audits in Hungary, the operation of a peer-review system of professional supervision is planned. The results of these data analyses and clinical audits may provide a sound basis for policies targeting professional and organisational development of cancer care. These quality initiatives are not limited to oncological

activities: indicators for each medical field – to form the basis for clinical audits – are in development. Testing and implementation of the new evaluation system is expected in the coming years.

**5.3 Costs and value for money**

**Cancer care is funded by social health insurance for all insured people**

In Hungary, all elements of cancer care – from screening to palliative care – are available through public financing for all insured citizens. A special administrative process also gives access to new procedures that have not yet been integrated into the public financing scheme; for these cases, the National Institute of Health Insurance Fund Management assesses requests within 30 days. Owing to the annual cost limit of this fund, access to it is more secure at the beginning of the year. For the most expensive treatments and those only available abroad (such as proton therapy), authorisation is subject to the approval of the College of Oncology.

Thanks to the extensive coverage, and a recent expansion in cancer drug coverage, out-of-pocket payments are not prevalent in cancer care. Patients may need to purchase drugs that reduce symptoms induced either by illness or treatments, however.

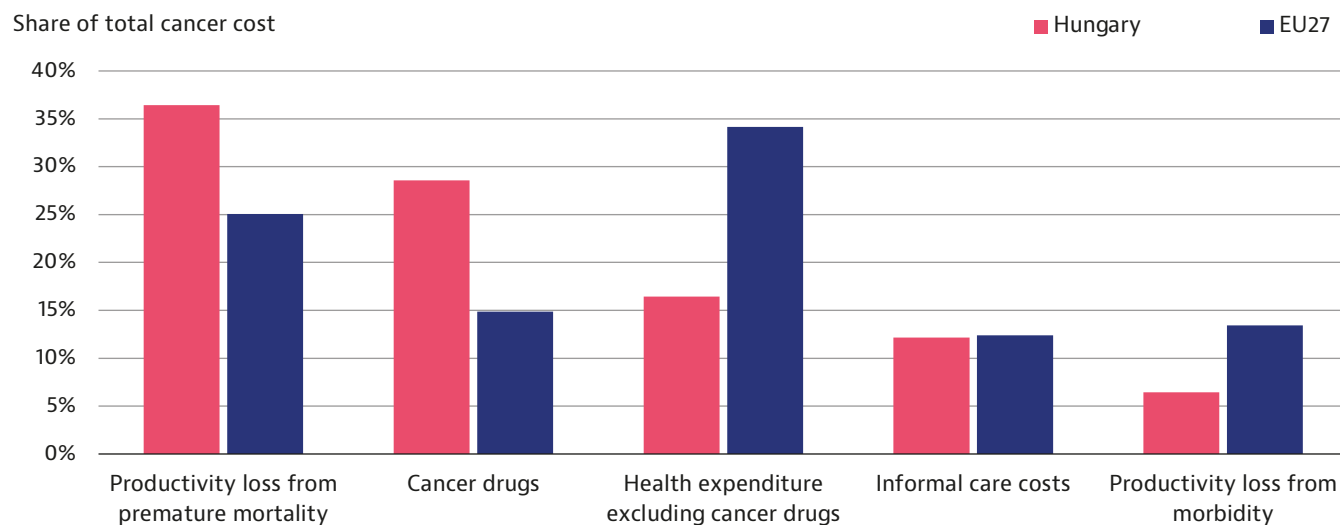
**Cancer drugs account for almost two thirds of health expenditure on cancer care**

The total cost of cancer in Hungary in 2018 was estimated to be EUR 1 372 million. The cost per capita (adjusted for differences in purchasing power) was EUR 226, which is 69 % of the EU

average (EUR 326). Nearly half of the total sum (EUR 618 million) was expenditure on cancer care, and spending on cancer drugs was almost two thirds of that total – a proportion twice the EU average (Figure 12). Alongside direct expenditure

on cancer care, the total cost includes informal costs and indirect costs (productivity loss). While the former is on a par with the EU average, productivity loss due to premature mortality significantly exceeds it.

**Figure 12. Cost for cancer drugs and productivity losses are pronounced in Hungary**



Note: The EU27 average is unweighted (calculated by the OECD). No adjustment for price differentials. Cancer drug expenditure does not include confidential rebates.  
Source: Hofmarcher et al. (2020).

**Approval procedures, financial protocols and further centralisation are key to cost optimisation**

Approval procedures aim to ensure that only evidence-based and cost-effective treatments are included in the national cancer care system. In addition, statutory financing protocols (see Section 5.2) are designed to control costs by making financing dependent on providers following the prescribed diagnostic and treatment protocols.

The regional centralisation of cancer care contributes to limiting costs through appropriate allocation of resources by concentrating complex and rare procedures in regional and national centres. This is the case for recently introduced new procedures, such as molecular pathology tests and robot-assisted surgery.

Furthermore, according to expectations, the planned organ-specific centralisation would not only improve quality but would also help to cover the cost of cancer treatment, based on the principle of value for money.

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

**Resource reallocation contributed to a reduction in the number of cancer patients treated**

According to preliminary data from the National Cancer Registry, between 2019-20 the total number of treated cancer patients decreased by 25.1 % in the Hungarian oncology network. This reduction reflects drops in the number of currently treated patients as well as follow-up consultations.

A decrease in registered cancer incidence in part explains the lower number of cancer patients treated. Compared with 2019, preliminary results show that registered incidence declined by about 10 % in 2020 and by 11 % in 2021. A recent study looking at changes in patient numbers and treatment episodes for the three most common cancers (lung, breast and colorectal cancers) during COVID-19 found a 10-20 % reduction in patient numbers at the beginning of the pandemic. It also observed a decline in treatment episodes for all these cancer types, including surgery, radiation therapy and chemotherapy (although the magnitude of the reduction differed by type) (Mayer et al., 2022).

Patients' fear of infection and perceptions about restrictions in access to care, as well as extended examination times and limited capacities, were cited as possible reasons contributing to these reductions. The pandemic led to mobilisation of resources normally dedicated to cancer care to care for people diagnosed with COVID-19. In oncology centres around the country, on average 20-30 % of hospital beds and half of the resident physicians were reassigned to take care of patients diagnosed with COVID-19. Meanwhile, the Budapest-based National Institute of Oncology was exempt from most mobilisation requirements and related restrictions. Thus, it could continue operation without a decline in the number of patients throughout the pandemic.

Like cancer incidence, cancer mortality decreased by an estimated 4 % (around 400-500 deaths). This may be explained in part by the fact that COVID-19 was determined to be the cause of death if the deceased had tested positive for the disease at the time of death in Hungary. Thus, for instance, patients receiving cancer treatment who contracted COVID-19 in the hospital and subsequently died were automatically counted as victims of the latter disease.

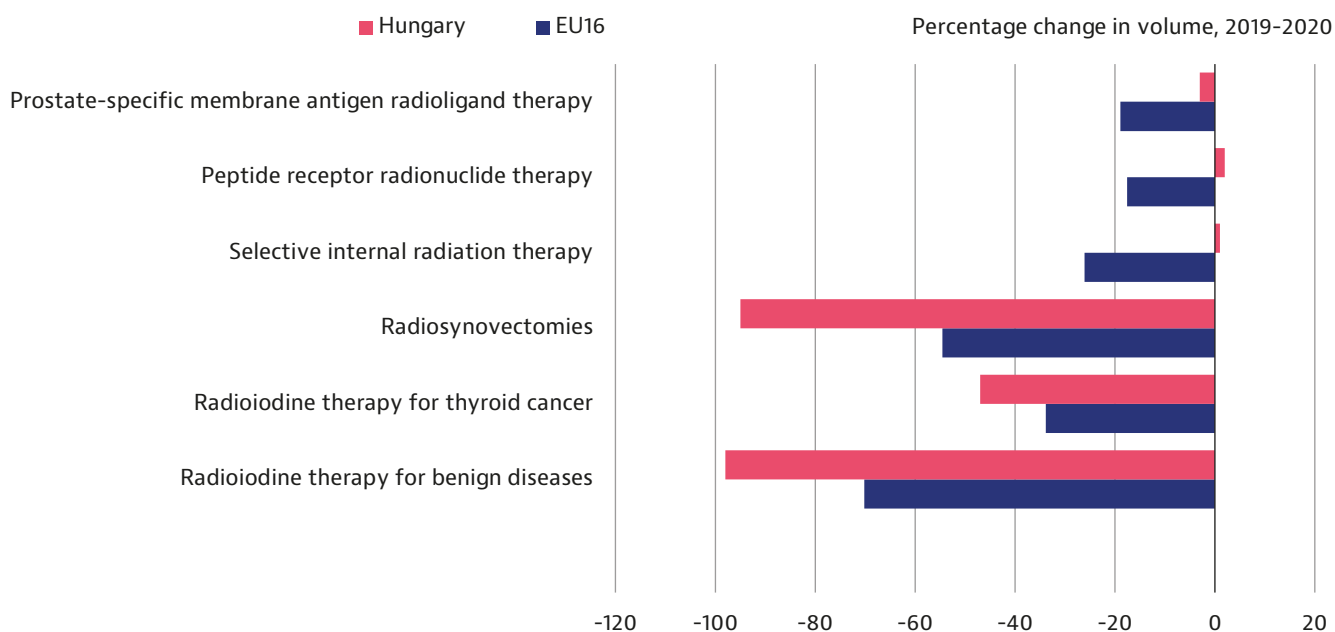
### COVID-19 disrupted national screening programmes temporarily

Early detection services were halted twice: during the first wave of the pandemic in March-June 2020 (2.5 months) and during the third wave for a shorter period (9-29 April 2021). The COVID-19 pandemic led to a 68 % reduction in the number of mammograms in the second quarter of 2020, and a 20-35 % reduction during September 2020 and August 2021 (Elek et al., 20221). The study also found that new breast cancer diagnoses and mastectomy surgeries were 15-30 % below their usual level between the second quarter of 2020 and the second quarter of 2021.

To overcome the decline in early detection activities caused by the pandemic and increase participation, new communication initiatives are planned, incorporating involvement of a range of actors, including patient organisations and the media.

Temporary suspensions did not apply homogeneously to all diagnostic procedures and treatments for cancer patients (Elek et al., 2022). While some non-essential surgical interventions such as fibroadenoma surgeries were postponed because of the pandemic, declines in the volumes of different interventions were not uniform in 2020. As shown in Figure 13, contrary to the average of selected EU countries, radionuclide therapies and selective internal radiotherapy did not record reduction compared to 2019.

**Figure 13. Radionuclide therapies were not suspended during the COVID-19 pandemic**



Note: In some cases, countries provided no data concerning a therapy. In such cases, the therapy was probably not performed. The unweighted EU16 average was calculated by the OECD. Source: Freudenberg et al. (2020).

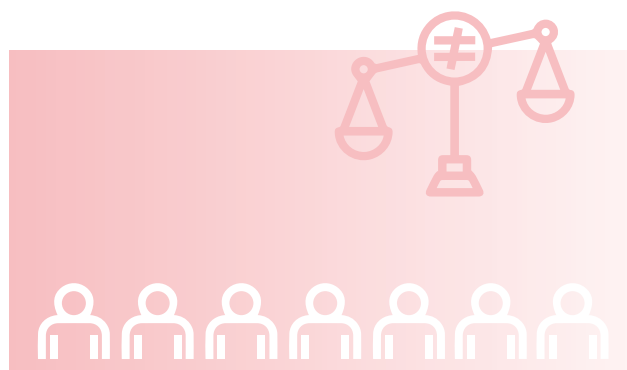
## 6. Spotlight on inequalities

In the Hungarian health care system, all elements of cancer care – from screening to palliative care – are generally available through public financing. However, inequalities persist, particularly in relation to risk factors and early detection of cancer.

- Given higher prevalence of risk factors for cancer among people with lower education levels (such as smoking or hazardous alcohol consumption), the risk of developing neoplasms is significantly linked to educational attainment. Cancer mortality was twice as high among women with lower than higher education levels, and four times as high among men with lower than higher education levels.
- Prevalence of behavioural risk factors in the Hungarian population is a major factor contributing to the country's highest registered cancer mortality in the EU. While the overall share of daily cigarette smokers decreased, inequalities in this respect remain pronounced by educational attainment. Almost three times more Hungarians with lower education levels were daily smokers in 2019 than those with higher education levels. This is the largest recorded inequality by education in smoking prevalence in the EU.
- Obesity and overweight have become increasingly prevalent. By 2019, the problem affected more than half of Hungarians. The most significant disparities in prevalence of obesity and overweight can be observed by age (17 percentage points higher among Hungarians aged 65 or older, compared to those aged 15-64) and by sex (14 percentage points higher among men than women).
- Population-based screening programmes have been rolled out for breast, cervical and colorectal cancer. Educational attainment appears to be a major determinant in screening rates for both breast and cervical cancers. Reported participation was 21 percentage points higher for breast cancer and 41 percentage points higher for cervical cancer among women with higher compared to those with lower education levels.

Given that the burden of cancer in Hungary is among the highest in the EU, improving outcomes along the cancer care pathway has been a priority in recent years: investments have targeted the wider application of new diagnostic and treatment procedures. Availability of new procedures in publicly funded health care improved access to care, as no oncological tests or therapies can only be accessed at private providers.

However, a shortage of cancer care specialists persists at the regional and county level, combined with low density of radiation therapy equipment, which contributes to geographical disparities in access to care. New initiatives are under way to foster health literacy, strengthen prevention and improve uptake of early detection services. These efforts have an explicit focus on disadvantaged communities.





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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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