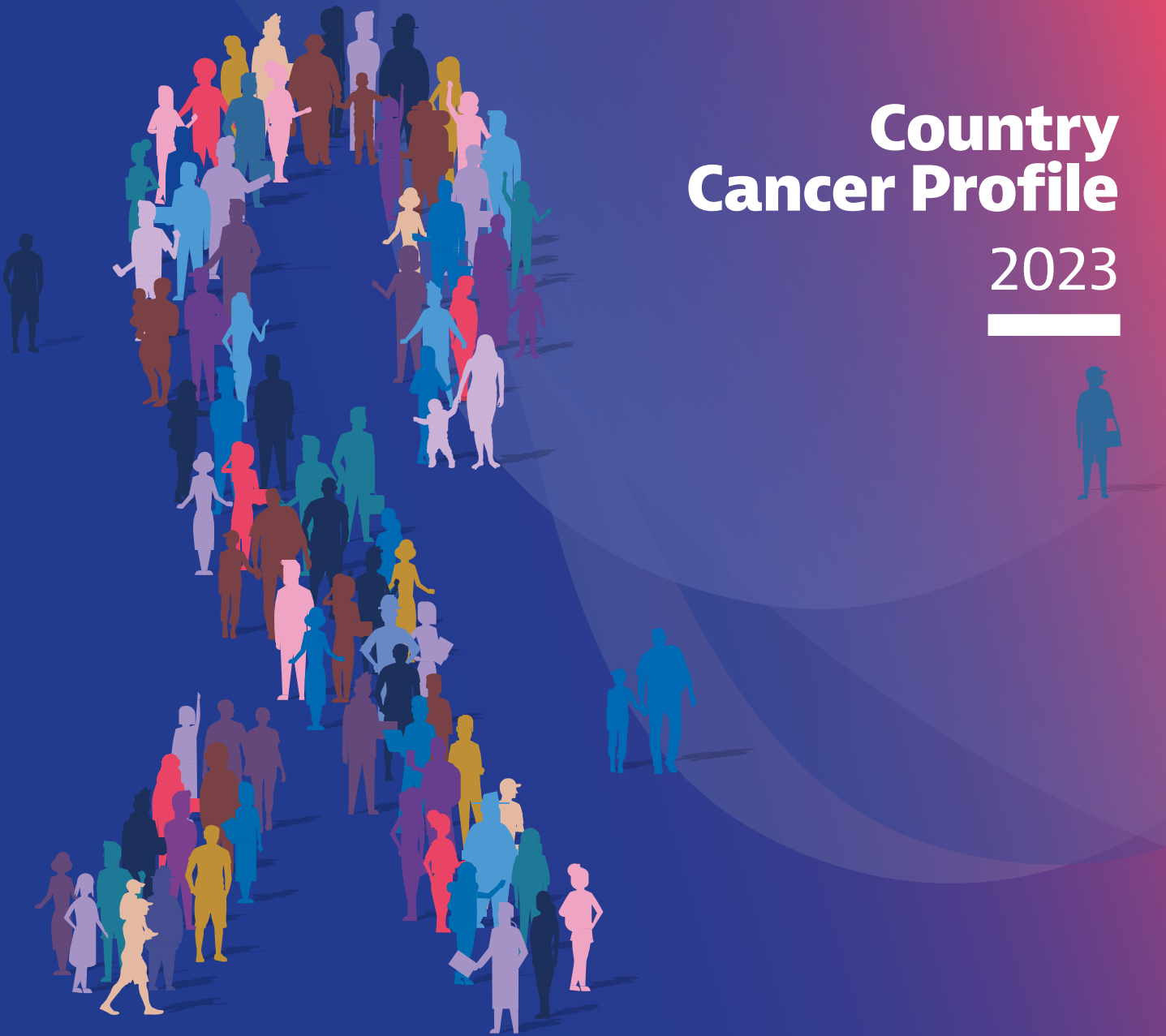




CYPRUS

# 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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*Note by the Republic of Türkiye: The information in this document with reference to "Cyprus" relates to the southern part of the Island. There is no single authority representing both Turkish and Greek Cypriot people on the Island. Türkiye recognises the Turkish Republic of Northern Cyprus (TRNC). Until a lasting and equitable solution is found within the context of the United Nations, Türkiye shall preserve its position concerning the "Cyprus issue".*

*Note by all the European Union Member States of the OECD and the European Union: The Republic of Cyprus is recognised by all members of the United Nations with the exception of Türkiye. The information in this document relates to the area under the effective control of the Government of the Republic of Cyprus.*

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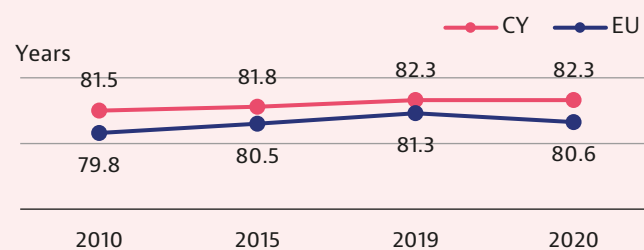
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## Contents

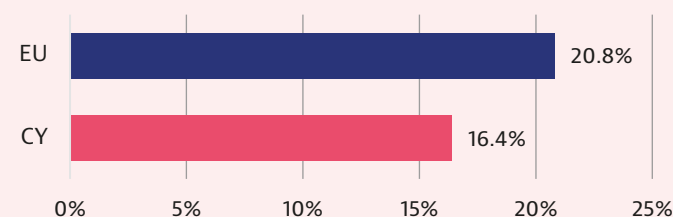
1. HIGHLIGHTS	3
2. CANCER IN CYPRUS	4
3. RISK FACTORS AND PREVENTION POLICIES	7
4. EARLY DETECTION	10
5. CANCER CARE PERFORMANCE	12
5.1 Accessibility	12
5.2 Quality	15
5.3 Costs and value for money	16
5.4 COVID-19 and cancer: building resilience	17
6. SPOTLIGHT ON INEQUALITIES	18

## Summary of the main characteristics of the health system

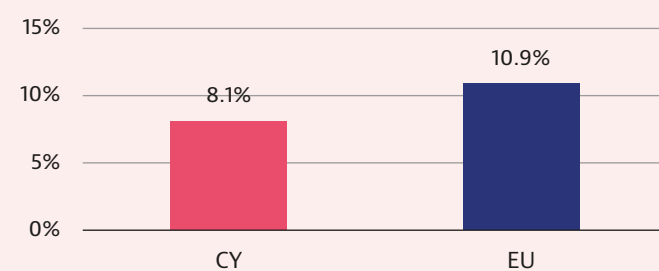
### LIFE EXPECTANCY AT BIRTH (YEARS)



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

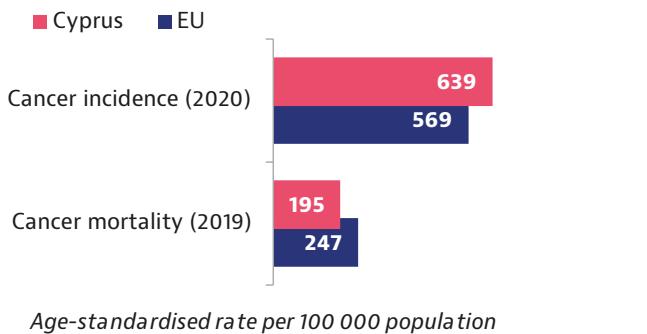


### HEALTH EXPENDITURE AS A % OF GDP (2020)



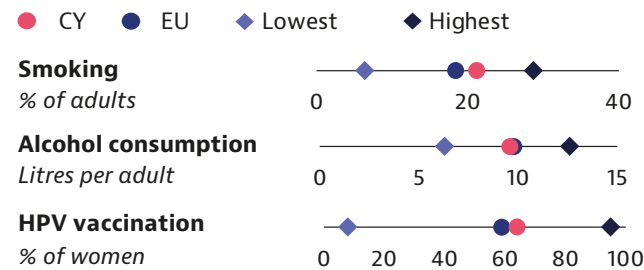
Source: Eurostat Database.

# 1. Highlights



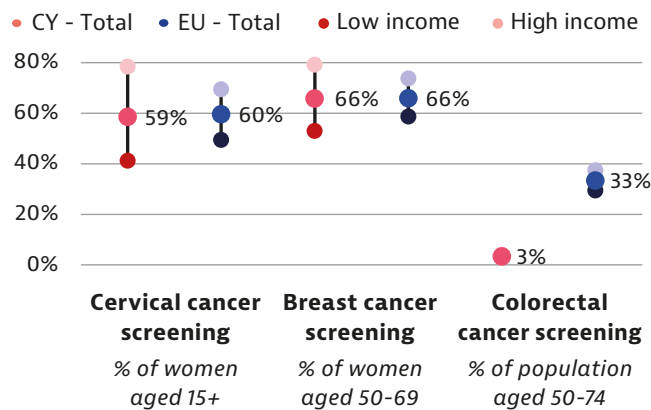
## Cancer in Cyprus

Approximately 5 000 new cancer cases were expected in Cyprus in 2020, corresponding to an age-standardised incidence rate of 639 new cases per 100 000 population – above the EU average of 569. Cancer mortality in Cyprus is among the lowest in the EU. The leading causes of cancer mortality among men were lung, prostate, and colorectal cancer, while among women they were breast, lung and colorectal cancer.



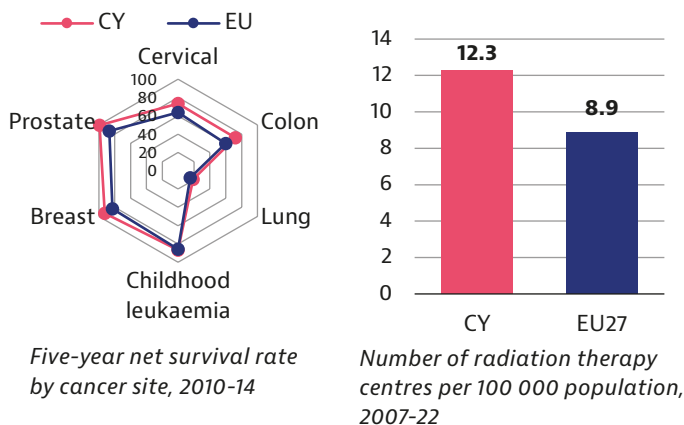
## Risk factors and prevention policies

Tobacco consumption remains a major public health concern in Cyprus, and with particularly high rates among men. Cyprus introduced the human papillomavirus (HPV) vaccine in the National Immunisation Programme in 2016. The most recent data on HPV vaccination coverage show that it is above the EU average.



## Early detection

Breast cancer is the only cancer with a national population-based screening programme offered to a specific at-risk target population. Participation rates in cancer screening are close to the EU averages for breast and cervical cancer but very low for colorectal cancer. Socioeconomic inequalities in uptake of cancer screening are substantial.



## Cancer care performance

Overall quality of cancer care in Cyprus, reflected in five-year survival rates, is good. However, low numbers of cancer procedures may hinder the quality of services and procedures provided. The country has among the highest availability of health technology in the EU, but an important proportion is located in private sector institutions, which might lead to inequalities in access.

# 2. Cancer in Cyprus

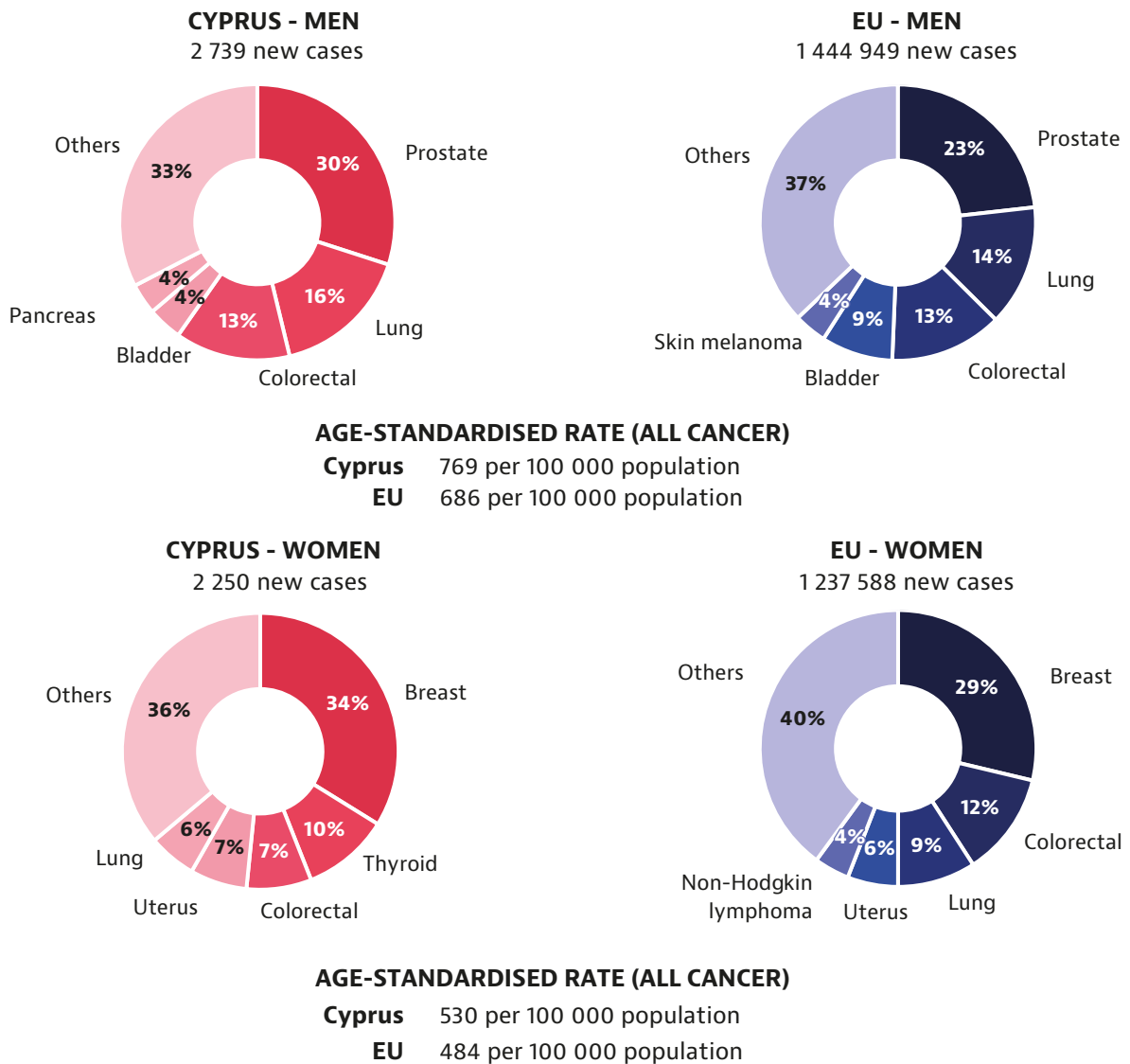
## Cancer incidence in Cyprus is above the EU average and is expected to increase in the coming years

According to European Cancer Information System (ECIS) of the Joint Research Centre based on incidence trends from pre-pandemic years, approximately 5 000 new cancer cases were expected in Cyprus in 2020 (Figure 1). This equates

to an age-standardised incidence rate of 639 new cases per 100 000 population – above the EU average of 569 per 100 000. Most of the new cases were expected among men (55 %). Further, the projections estimate a 53 % increase in new cases by 2040, which is one of the highest expected increases across the EU.

**Figure 1. Almost 5 000 new cancer diagnoses were expected for 2020 in Cyprus**

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

For men, prostate cancer is the most common in Cyprus, constituting nearly one third of new diagnoses, followed by lung, colorectal, bladder and pancreas cancers. For women, breast cancer is consistently most common – constituting 34 % of new cases in Cyprus, compared with 29 % throughout the EU (Figure 1) – followed by thyroid and colorectal cancers. Lung cancer among women, at 5.6 % of all new cancers, is not as common as among men, at 16 %.

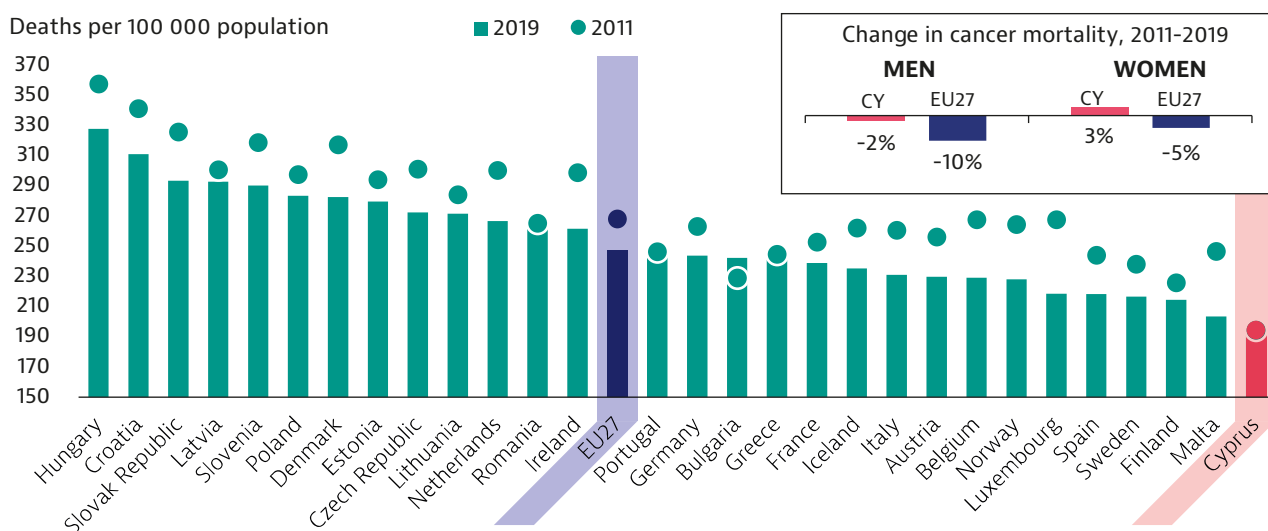
In 2020, gastric (stomach) cancer was expected to constitute 3 % of new cancer cases in men and 2 % in women, and it accounted for an overall mortality rate of 7 per 100 000 population in 2019, which is lower than the EU average (10 per 100 000 population). Skin melanoma was expected to constitute 2 % of new cancer cases in both men and

women, and it accounted for an overall mortality rate of 3 per 100 000 population in 2019. For paediatric cancer, the age-standardised incidence rate in children under 15 years in 2020 was 10 per 100 000, which is lower than the EU average (15 per 100 000 population).

### Cyprus reports the lowest cancer mortality rate in the EU

Contrary to the trends observed in almost all EU countries, cancer mortality rate in Cyprus has remained stable during the past decade. In 2011 the age-standardised cancer death rate was estimated at 195 deaths per 100 000 population, and it was the same in 2019. Currently, Cyprus reports the lowest cancer mortality rate in the EU, far below the EU average of 247 per 100 000 (Figure 2).

**Figure 2. Cancer mortality in Cyprus has remained stable in the past decade**



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

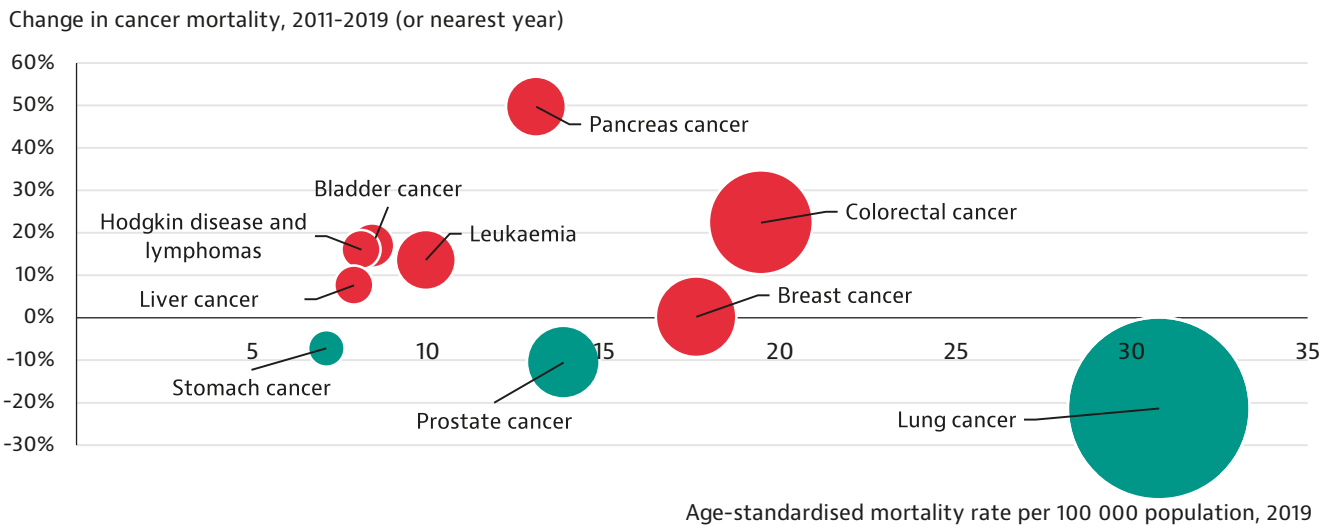
### Lung, colorectal and breast cancers are the major drivers of mortality by cancer

Cyprus experienced decreases in per capita mortality between 2011 and 2019 for lung (-21%), prostate (-11%) and gastric (stomach) (-7%) cancers. Large increases were reported for pancreatic cancer (+50 %) and colorectal (+22%), whereas breast cancer mortality rates did not change between 2011 and 2019 (Figure 3). Lung, colorectal, breast, prostate and pancreas cancers had the highest mortality rates in 2019.

### Incidence of thyroid cancer is particularly high among Cypriot women

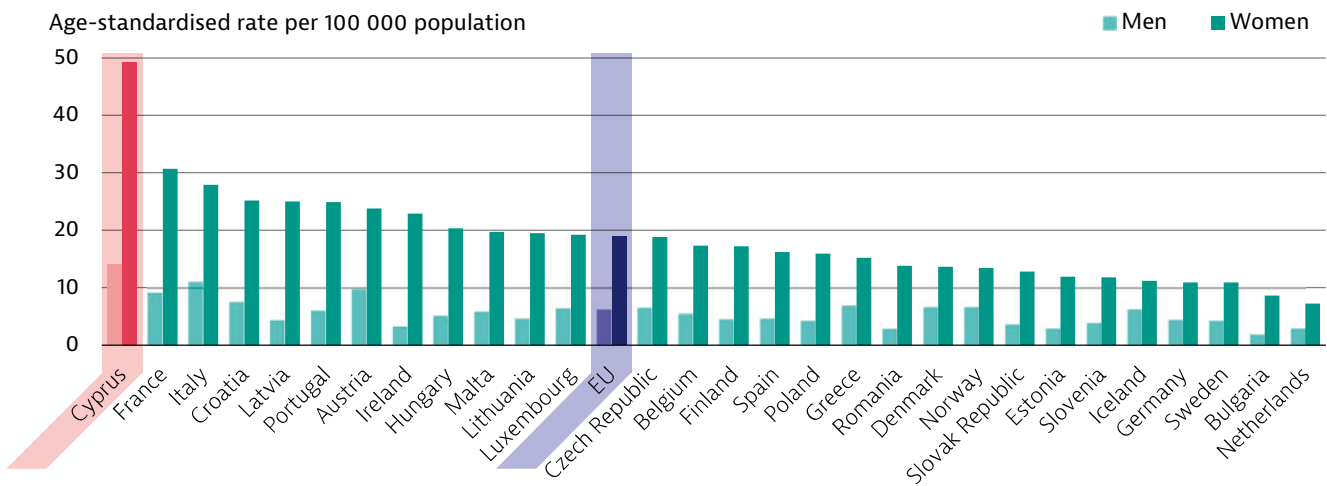
Thyroid cancer in Cyprus, while accounting for less than 6 % of the total, was expected to have the highest incidence rate among EU countries, at 32 cases per 100 000 population – nearly three times the EU average (Figure 4). Figures are particularly striking for women, as the incidence rate is 3.5 times that among men. This situation has been described extensively in recent years but remains mostly unexplained.

**Figure 3. Colorectal and breast cancer mortality increased in recent years**



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.

**Figure 4. Thyroid cancer incidence among women is a growing concern in Cyprus**



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

**The National Cancer Strategy has been updated, based on EU guidelines**

In 2019, Cyprus launched its updated National Cancer Strategy, based on EU guidelines. It takes the same holistic approach as the Europe’s Beating Cancer Plan (European Commission, 2020), covering the whole cancer pathway in five areas: prevention; early diagnosis and treatment; psychosocial support, reintegration and palliative care; case reporting and a cancer registry; and research. The goal of the Strategy is to organise and utilise all the existing resources and oncology infrastructure, and to improve data collection and sharing to inform service provision, prevention and research. The Strategy also takes into account new conditions in the health system following implementation of the

General Healthcare System, within which patients are entitled to choose their provider (doctor, clinic or hospital, laboratory and other health allied professionals), if they are registered with the new system. The National Cancer Strategy therefore seeks to improve coordination at all levels of the system.



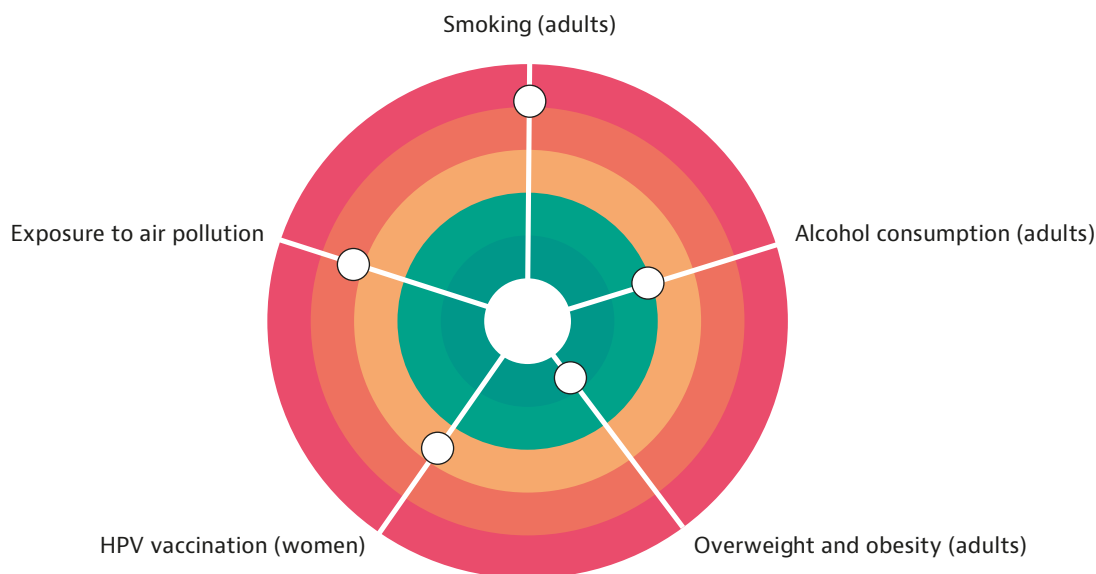
# 3. Risk factors and prevention policies

## Lifestyle-related risk factors are key drivers of cancer incidence

Cyprus demonstrates some above-average and some below-average performance rates for lifestyle choices that are cancer risk factors (Figure 5). Smoking rates are among the highest compared to

those in neighbouring countries, but overall alcohol consumption is lower than the EU average. Overall, stronger prevention and greater public health efforts could help reduce unhealthy lifestyles. In 2020, only 1.7 % of health spending was on prevention – lower than the EU average of 3.4 %.

**Figure 5. Smoking and air pollution are important risk factors for cancer in Cyprus**



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

## Cigarette smoking remains a major public health issue, especially among men

Tobacco consumption remains a major public health concern in Cyprus. Although fewer adults smoked daily in 2019 than 2014 (21.2 % vs. 25.2 %), the rate was still above the EU average. However, the rate of reduction was greater than the EU average (18.4 % in 2019 vs. 19 % in 2014). Smoking rates among men (30.1 %) were significantly higher than among women (12.8 %), which is reflected in higher incidence of lung cancer among men (Figure 6). The high prevalence of smoking among men is both cultural and systemic. A high proportion of Cypriot men start smoking during their mandatory 26-month army service. Furthermore, there is an increasing trend of

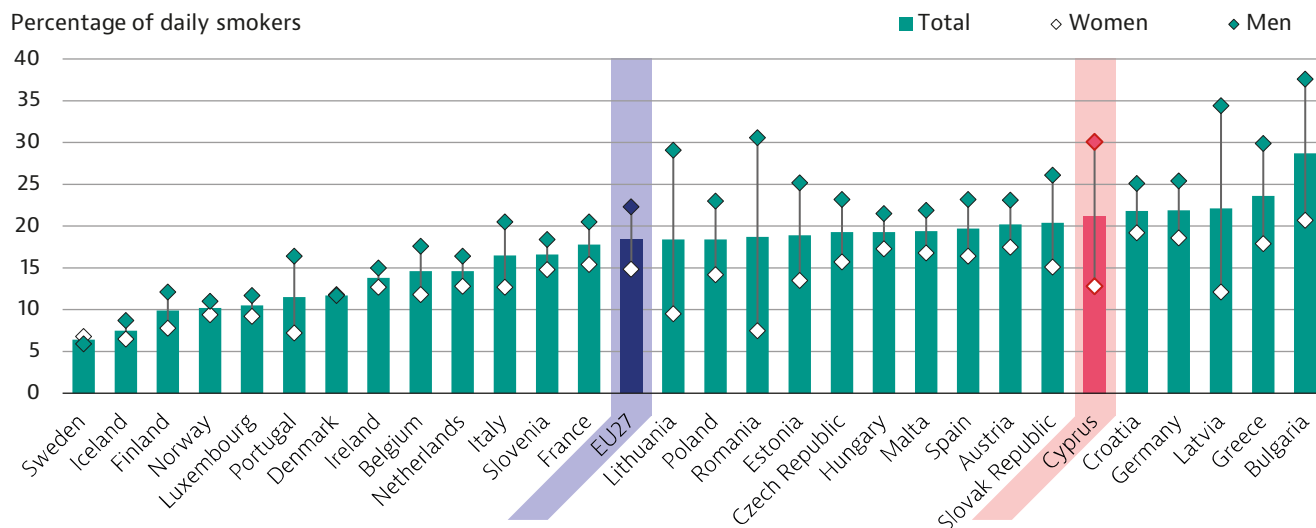
smoking with a waterpipe (hookah or nargile), which is considered a gateway to tobacco smoking. Waterpipe use is very common among men in the Middle East and North Africa, which are culturally close to Cyprus.

Cyprus signed and ratified the WHO Framework Convention on Tobacco Control and the Protocol to Eliminate Illicit Trade in Tobacco Products in 2005. In 2017, the smoking was banned in public places (including bars, cafes and restaurants) and heavy fines were introduced, but the ban was only applied to fully enclose indoor spaces, leaving loopholes that can be exploited. According to the 2021 WHO report on the global tobacco epidemic, Cyprus performed moderately well in implementing

smoke-free environments. The country is, however, fully compliant with bans on tobacco advertisements, and cigarettes were less affordable

in 2020 than 2010 – with tobacco taxes almost 75 % of the retail price – although no earmarking of tobacco taxes for health was reported (WHO, 2021).

**Figure 6. The gender gap in smoking rates is particularly wide in Cyprus**



Note: The EU average is weighted (calculated by Eurostat). Source: Eurostat, European Health Interview Survey (EHIS). Data refer to 2019.

Unlike in most EU countries, a larger proportion of adults in Cyprus with higher than with lower education levels are daily smokers (20 % vs. 16.5 %): the equivalent EU averages are 12.7 % vs. 18.6 %. The proportion of daily smokers in Cyprus is higher among those on lower incomes than those on higher incomes, but the gap is less marked than across the EU.

The proportion of 15-year-olds who reported smoking cigarettes was lower than in most EU countries in 2019. However, although only one in ten 15-year-olds in Cyprus reported smoking cigarettes in 2019 (a proportion slightly lower than the EU average), e-cigarettes and waterpipes – which are considered a gateway to tobacco smoking – have become more popular recently.

**Alcohol consumption is lower than in most other EU countries**

Total consumption in litres of pure alcohol increased rapidly in Cyprus between 1996 and 2002, and then decreased steadily. In 2020, the overall alcohol consumption in Cyprus (9.6 litres of pure alcohol in the year) is slightly below the EU average of 9.8 litres (Figure 7). Moreover, the majority of alcohol consumed (42 %) is strong liquor (spirits) rather than wine (28.4 %) or beer (29.7 %). In 2020, the age-standardised cancer rate attributed to alcohol drinking was 8.8 per 100 000 population, lower than the EU average of 12.3 per 100 000 population. In 2014, only 0.5 % of the population reported hazardous alcohol consumption. This was

the lowest among EU countries, where the average was 2.7 % of the population (Figure 7). However, the majority of hazardous drinking is reported in men; this, in combination with high smoking prevalence among men, increases the risks of cancer incidence.

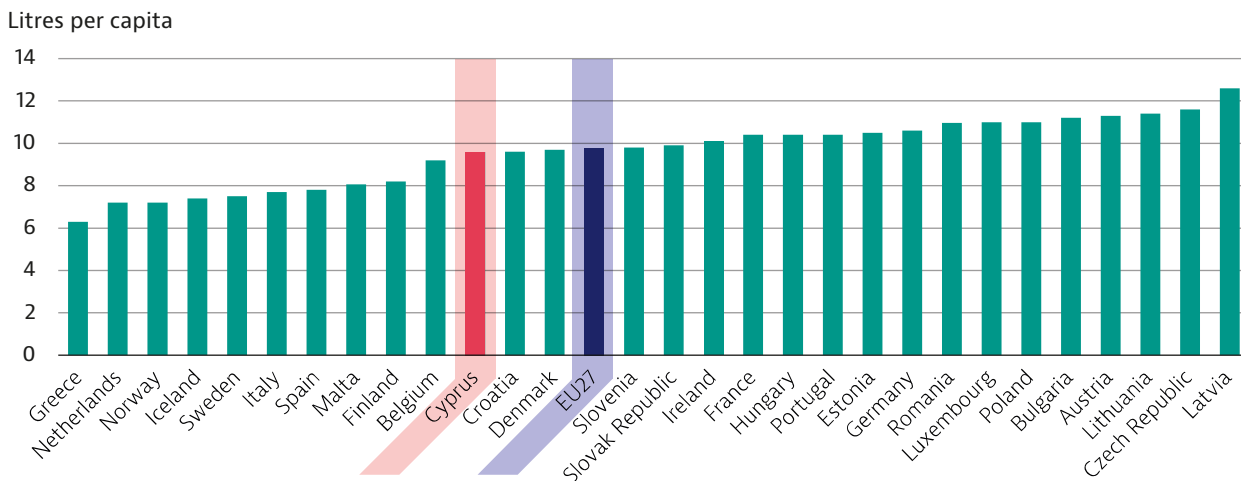
In terms of alcohol consumption prevention measures, Cyprus performs well in certain policy areas, but there are opportunities for further action. Improvements that could be prioritised include marketing regulation – particularly for children and adolescents; pricing policies for cheaper alcoholic beverages that target hazardous and binge drinkers as well as younger population groups; and upscale actions to address drink-driving. Other areas could include health literacy and awareness programmes at schools, and expanding screening and counselling programmes in health services (OECD, 2021).

**Obesity among children and adults with lower education levels is a public health concern**

It is estimated that 49.8 % of Cypriot aged 15 to 64 years were at least overweight in 2019, and 14.6 % were obese – proportions slightly lower than the respective EU averages (52.7 % and 16 %). However, obesity rates among children are significantly higher. In 2015-2017, one in five children aged 6-9 years were obese, which was the highest rate among EU countries at the time.



**Figure 7. Per capita alcohol consumption is lower than the EU average**



Note: Unweighted EU27 average calculated by OECD.

Source: OECD Health Statistics 2022; WHO Global Information System on Alcohol and Health (GISAH).

Low physical activity is an important contributor to overweight and obesity. Only 22.4 % of people aged 15 to 64 years reported that they exercised more than 150 minutes per week in 2019 – lower than the EU average of 32.7 %. People with lower education levels are at greater risk for overweight and obesity, as they exercise less and consume less fruit and vegetables than those with higher education levels.

The Cyprus Sports Organisation developed a national plan to support people with long-term physical and mental disabilities and non-communicable diseases to improve their physical, mental and social well-being through physical activity and sport. The objectives include raising awareness of the benefits of greater involvement in physical activity; identifying people’s basic physical activity needs; and offering free exercise services and sports equipment through organisations that specialise in working with people with disabilities and non-communicable diseases. Financial support is offered to cover additional expenses for activities directed at promoting physical activity (WHO Regional Office for Europe, 2021).

**Air quality levels have improved but pollution remains high**

Air pollution in the form of fine particulate matter<sup>1</sup> (PM<sub>2.5</sub>) and ozone exposure in Cyprus was estimated at 13.4 µg/m<sup>3</sup> in 2019, which is a slightly higher than the EU average (12.6 µg/m<sup>3</sup>). Policies to reduce air pollution appear to have been effective, since the rate in 2009 was 21.5 µg/m<sup>3</sup> – at the time much higher than the EU average (18.5 µg/m<sup>3</sup>) – but there remains room for improvement. Cyprus also suffers from dust episodes (most prominently

in spring each year), when dust from the Sahara is carried to the country on wind currents. It has been demonstrated that Sahara dust carries with it many minerals and micro-organisms that may have an impact on human health, so this may also be a factor contributing to overall cancer trends – especially to cancers of the respiratory tract.

**Human papillomavirus vaccination is part of the National Immunisation Programme**

Persistent infection with an oncogenic HPV can lead to pre-cancerous lesions and then cancer, mostly in the cervix but also in other sites (anus, oropharynx, vulva, vagina, oral cavity, larynx and penis). The Global strategy to accelerate the elimination of cervical cancer as a public health problem, adopted by the World Health Assembly in 2020 (WHO, 2020), recommends a comprehensive approach to cervical cancer prevention and control. The recommended actions include interventions across the life course, such as HPV vaccination and screening and treatment of cervical pre-cancer lesions.

Cyprus introduced the HPV vaccine into the National Immunisation Programme in 2016, and three HPV vaccines are currently licensed in Cyprus. Administration of the vaccine is recommended at the age of 11-12 years; it is provided free of charge to girls aged 11-13 years. The most recent data on HPV vaccination coverage for 2016-2020 show that proportion of 15-year-old girls who were fully vaccinated was 54 % in 2018, 59 % in 2019 and 64 % in 2020 (above the 59 % EU average).

<sup>1</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.

# 4. Early detection

National cancer screening rates in Cyprus have not improved in recent years, but the limited available data might not provide a complete picture. The Department of Medical and Public Health Services within the Ministry of Health is responsible for organising and delivering a wide spectrum of preventive and health promotion activities, including surveillance and monitoring of non-communicable diseases; early diagnosis of cancers; control of sexually transmitted infections; immunisation; occupational health; and health education and promotion.

## Early detection is a pillar of the National Cancer Strategy

As mentioned in Section 2, in 2019 Cyprus updated the National Cancer Strategy, which aims to reduce cancer incidence, increase survival rates and improve the quality of life of cancer patients. The Strategy includes a series of actions related to early detection of any type of cancer. The framework emphasises that effective early detection can be achieved through simultaneous interventions involving the health system, health professionals and the public. Unfortunately, the Strategy was not followed by an action plan or a monitoring

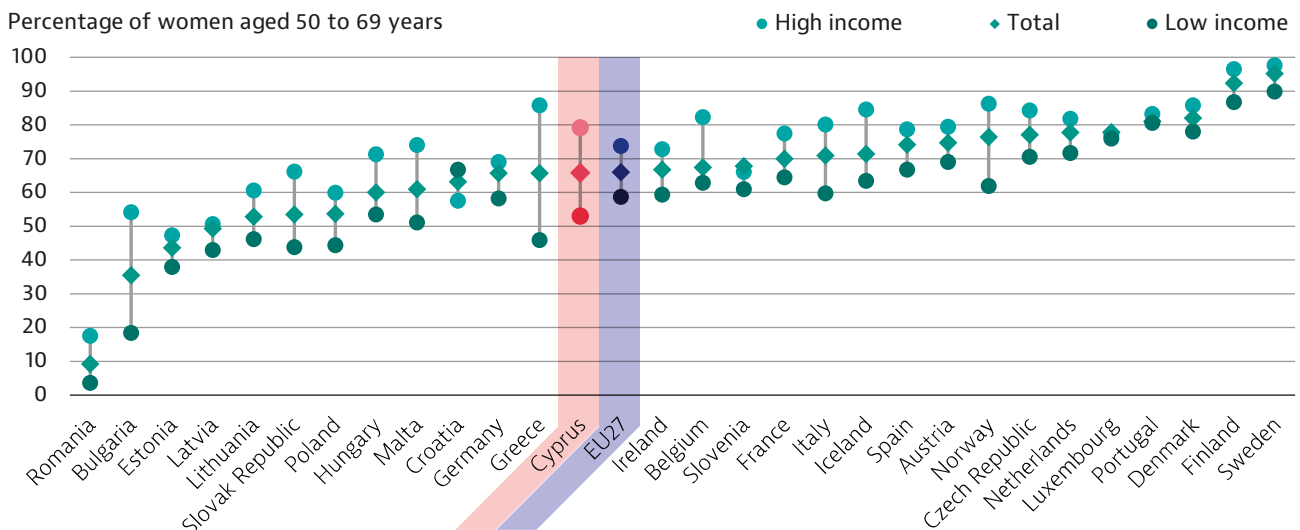
mechanism, and implementation has been limited – especially during the COVID-19 pandemic.

Among the priorities of the Strategy are establishment of a national cancer institute and a comprehensive cancer centre, consolidation of public oncology services with the Bank of Cyprus Oncology Centre (BOCOC)<sup>2</sup>, upgrades of diagnostic and curative services, expansion of HPV vaccination among adolescent boys, expansion of screening programmes and integration of palliative care services (Ministry of Health, 2019).

## Breast cancer screening rates are close to the EU average, but income inequalities are substantial

The only national population-based screening programme (screening offered to a specific at-risk target population) is for breast cancer. This was initiated in 2003 in one district (Nicosia) and was expanded countrywide. The programme targets women aged 50-69 years; it is free of charge and is offered every other year, with a screening centre operating in each of the major cities. Reportedly, the plan is to expand the age group to 45-69 years. In 2019, according to the EHIS, 65.8 % of all women

**Figure 8. Income inequalities in the uptake of breast cancer screening are substantial in Cyprus**



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.

<sup>2</sup> In 1992 the Republic of Cyprus came to an agreement with the Medical Foundation of the Bank of Cyprus to establish an oncology centre using a Bank donation; the BOCOC opened in 1998. The government covers the cost of supplies and drugs, as with all cancer patients. The Bank of Cyprus assumes the cost of devices and technology upgrades for the Centre's operation, as well as a proportion of staff incomes.

aged 50 to 69 years reported having breast cancer screening, which is similar to the EU average of 65.9 %.

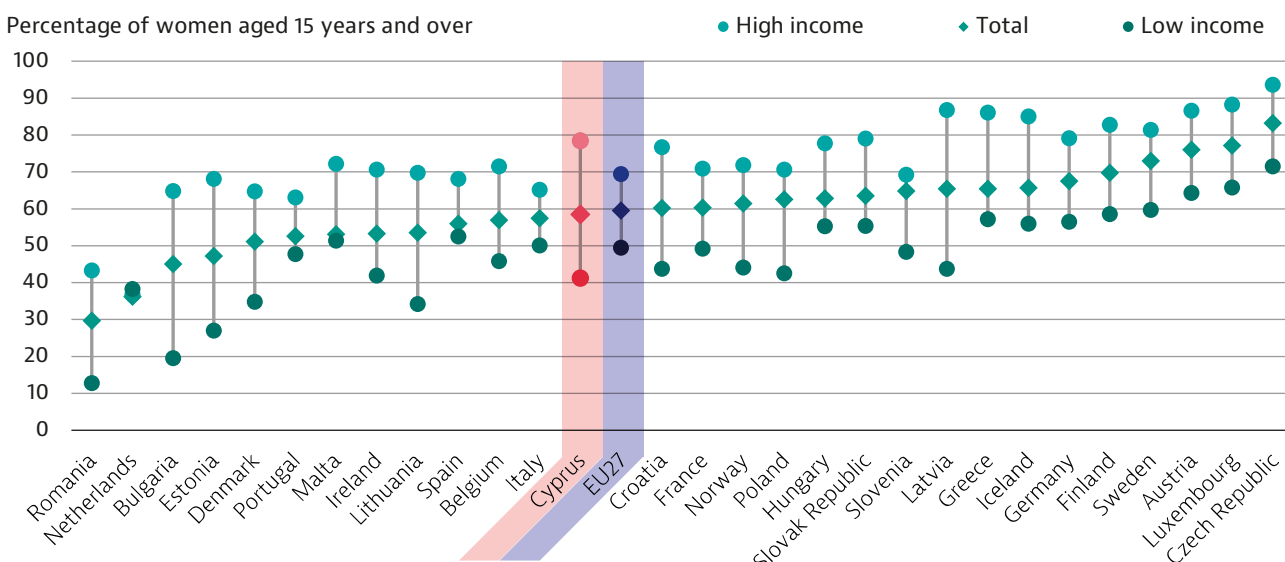
However, substantial income inequalities are reported. In 2019, only 53 % of women in the lowest income quintile reported having been screened which is much lower than the rate in the highest income quintile (79%) (Figure 8). This may be linked to the extensive presence of the private sector and the limited financial protection provided, at least until the General Healthcare System was implemented in 2020.

**Cervical cancer screening uptake is close to the EU average, but with substantial inequalities**

No national screening programme for cervical cancer is in place in Cyprus – only opportunistic

screening, which relies on a doctor’s recommendation. Despite this, cervical screening uptake is close to the EU average according to the EHIS: in 2019, 58.5 % of women aged 15 years and over reported having had a smear test during the previous three years (compared with 59.5 % across the EU). However, important inequalities are reported. Fewer women on lower (41.2 %) than higher (78.4 %) incomes were screened (Figure 9), and this income gap is among the highest in the EU. This might be explained by the fact that public hospitals offer free screening for women in their gynaecology departments, but long waiting lists probably discourage women – especially those with lower socioeconomic status – from accessing them.

**Figure 9. Income inequalities in cervical cancer screening are significant in Cyprus**



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.

The Cyprus Association of Cancer Patients and Friends (PASYKAF) is a voluntary, non-profit non-governmental organisation (NGO) that provides a spectrum of socio-medical services to cancer patients and their families, including palliative and supportive care, psychological and social support, post-therapy support and other services. It is responsible for the HPV Eradication Programme, which is run under the auspices of the Ministry of Health and carried out with the support of Paediatrics, Gynaecology, the Pan-Cypriot Colposcopy and Cervical Pathology Society, the Oncology Society, the Dermatology-Venereology Society and the MSD.

In 2022, within the framework of the HPV Eradication Programme, PASYKAF launched an

awareness campaign to promote early detection of cervical cancer and to strengthen primary and secondary prevention. In collaboration with the Gynaecological Society of Cyprus, PASYKAF provided a smear test at a reduced price or free of charge to women aged 25-60 years who needed a test but were not entitled. The programme was expected to run until the end of 2022.

**Colorectal screening rates are among the lowest in the EU**

Although colorectal cancer is the fourth most common cancer type in Cyprus, no national screening programme is in place. According to EHIS, in 2019 only 3.5 % of the population aged 50 to 74 years underwent a colorectal screening test

– the second lowest rate in the EU, and significantly below the EU average of 33.3 %. Culturally taboo aspects of colorectal cancer may affect uptake of screening via colonoscopy, especially for men aged over 50 years, as the degree of invasiveness of the examination affects the proportion willing to undergo the screening. No nationwide data on the number of colonoscopies performed are available. Some pilot programmes for systematic screening have been launched in recent years (in Larnaca, for instance), but formal evaluations have not been performed.

### **A newly established health system is expected to play a central role in early detection of cancers**

The new General Healthcare System was launched in 2019 to address prior fragmentation and provide

comprehensive care; it became fully operational on 1 June 2020 (European Observatory on Health Systems and Policies, 2021). The reform focused on primary health care, and efforts are under way to recruit additional general practitioners (GPs) and paediatricians to work within the public system. GPs are expected to play a key role in early detection of cancer, and should be adequately informed about cancer issues through continuous training. Campaigns on the importance of screening and reducing exposure to risk factors will be developed to increase awareness among the population.

## 5. Cancer care performance

### 5.1 Accessibility

#### **Overall unmet needs in Cyprus are among the lowest in the EU**

Even before the expansion of coverage with the new General Healthcare System, the proportion of the population reporting unmet needs for medical care in Cyprus due to cost, travel distance or waiting times was low. In 2019, just 1 % of the population reported unmet medical care needs, and in 2020 the proportion fell to 0.4 % – below the EU average of 1.8 %. From June 2019, entitlement to publicly financed health services is extended to all legal residents, including people from non-EU countries and documented asylum seekers, regardless of citizenship, income or payment of contributions (Kontemeniotis & Theodorou, 2020).

#### **Three health care facilities deliver cancer care to the Cypriot population**

Each of the five Cypriot districts has a public general hospital. Nicosia and Limassol hospitals have an oncology department that offers chemotherapy and hormone therapy services; the hospitals in the other three districts only have a visiting oncologist once a week, and offer no chemotherapy services. Cancer patients can be treated in the BOCOC (see Section 4), which is the only tertiary oncology referral centre in

the country. The BOCOC essentially operates as a public oncology centre, accepting all patients eligible for health care in the country. It provides comprehensive specialised nonsurgical oncology services, including both chemotherapy and radiotherapy, while the public hospitals oncology units provide only chemotherapy. A limited number of private oncologists are based in private hospitals. They see and treat a small percentage of cancer patients, although they often act as sources of a second opinion for patients treated at the BOCOC or at public hospital oncology units.

#### **Access to oncology medicines is free of charge, but availability may be limited**

All chemotherapy drugs are free of charge for Cypriot cancer patients. In general, cancer therapy and treatment in Cyprus is provided free of charge to all patients with a “hospitalisation ID”, which is issued to citizens according to specific income and insurance criteria. The rest of the population are covered through private insurance schemes or pay out of pocket.

Medicines are either dispensed for self-administration through any pharmacy or included in the hospital treatment package. Cancer patients also receive medicines from the BOCOC pharmacy. The General Healthcare System reimburses all medicines included in the list of

approved medicines in full. If the beneficiary chooses another drug in the same category from the list, however, the System only covers the amount corresponding to the cheapest drug in that category, and the beneficiary must pay the difference out of pocket. Use of medicines outside the indications approved by the regulators (off-label) is possible, and can be funded by the government.

However, based on a sample of 109 oncology product/indication pairs, only 58 % were approved for use and covered in Cyprus – which is among the lowest rates in the EU countries studied – whereas 30 % were approved but not covered. The rest of the products (12 %) were not marketed at all in Cyprus (Chapman, Paris & Lopert, 2020). This may be linked in part to measures taken during the financial crisis to contain health care costs (see Sections 5.3 and 5.4).

To improve access to pharmaceuticals, Cyprus is a member of the Valletta Declaration, which was signed on 8 May 2017. This regional co-operation scheme includes the ministries of health of Croatia, Cyprus, Greece, Ireland, Italy, Malta, Portugal, Romania, Slovenia and Spain; it covers 160 million citizens, representing 32 % of the total EU population. In accordance with the Valletta Declaration, a technical committee was established to explore new areas of activity, such as mechanisms for joint negotiation and procurement, as well as information and best practice sharing.

### **Health workforce capacity is constrained in the public sector**

In Cyprus, the density of doctors is 4 per 1 000 population, which is slightly above the EU average, while the density of nurses is around 6 per 1 000 population, which is well below the average. This statistic does not reflect wider imbalances in the workforce between the public and private sectors, as doctors primarily work in the private sector and nurses in the public sector. Prior to the implementation of the General Healthcare System, a large number of doctors in the public system switched to work in the private sector. Regarding cancer-related health workforce, in 2015 there were approximately 3.5 oncologists per 100 000 inhabitants.

Three medical schools offering undergraduate medical courses have been set up in recent years in Cyprus, bringing the total to four. The country is now able to train more doctors to fill vacant posts and to rely less on medics who study abroad returning to practise in Cyprus. One medical school recently started training medical students

at BOCOC, which will eventually contribute to increasing the oncology workforce in the country.

### **Cyprus has a plethora of medical equipment, but most is located in private sector institutions**

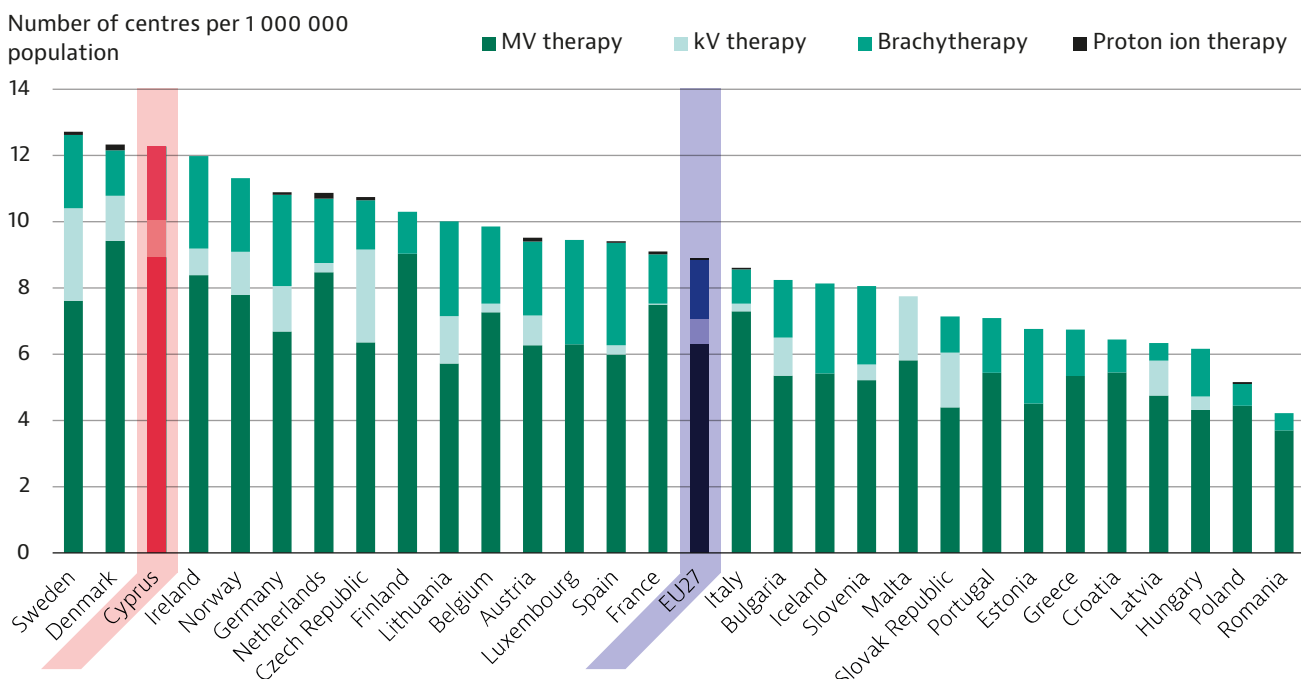
In 2019, Cyprus had a total of 7 radiation therapy devices, which is approximately 12 centres per 1 000 000 population – among the highest in the EU (Figure 10). The country more than doubled the available computerised tomography (CT) scanners – from 1.6 per 100 000 population in 2000 (vs. an EU average of 1.5), to 3.5 per 100 000 in 2019 (vs. an EU average of 2.4). Moreover, Cyprus has two magnetic resonance imaging (MRI) units per 100 000 population in hospitals – the second most units in the EU after Finland (2.9), and above the EU average of 1.1 units per 100 000 population. However, the majority are in private sector institutions, which leads to long waiting times in public health care services and financial barriers in access for groups on lower incomes.

### **Palliative and end-of-life care is mainly provided by voluntary organisations**

Palliative care services in the public sector are limited – they are mostly provided by the oncology departments of Nicosia and Limassol hospitals and BOCOC. In some cases, the private sector also provides these services, mostly in Nicosia. Palliative care is mainly provided by voluntary NGOs – the Cyprus Anti-Cancer Society, which is responsible for the Arodafnousa Palliative Care Centre, and PASYKAF, which assists people with home care services. Nurses employed by these NGOs are the main source of support for the patients and families (Kading, 2015). Their funding comes from annual government subsidies, fundraising events and public donations.

Over the last 20 years, many positive advances have been made to palliative care in Cyprus. While patients satisfaction with regards to palliative care services is good, several weaknesses have been identified in relation to communication and engagement skills that could improve quality of life (Constantinou et al., 2022). At least until 2015, there were no health professionals with training in paediatric palliative care. Furthermore, the integration of palliative care services into the General Healthcare System would ensure continuation and funding of both services and training. Furthermore, adoption of related clinical protocols and guidelines, and introduction of a palliative care specialisation, could improve the quality of palliative and end-of-life services significantly.

**Figure 10. Radiotherapy capacity is among the highest in the EU**



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

**The 2012-2013 financial crisis had a detrimental impact on access to cancer services**

Until 2013, entitlement to publicly financed health care was related to citizenship and income. Approximately 85 % of the population was covered by the state for health care services, among whom the majority (75 % of the population) were entitled to public health care services free of charge or with minimal user charges. Less than 2 % of the population were entitled to public health services but with some user charges and co-payments (Theodorou et al., 2012).

In response to the 2012-2013 financial crisis, the Economic Adjustment Programme was imposed in 2013. Following its adoption, entitlement to publicly financed health services was dependent on specific criteria, such as having a severe chronic condition and gross annual family income below EUR 150 000. From 2013 to 2019, in addition to citizenship and income, entitlement was also dependent on having paid taxes and social security contributions (OECD & European Observatory on Health Systems and Policies, 2017).

Cancer patients were entitled access to cancer care under two conditions: having paid at least three years of social security contributions and having filled in their tax return form at the time of seeking medical treatment. Non-beneficiaries had to pay out of pocket at the point of use, according to prices set by the Ministry of Health, unless they were members of a private voluntary health

insurance scheme. Among these, in the case of cancer, non-beneficiaries would be treated in public provided health care services (Kontemeniotis & Theodorou, 2020).

The financial crisis resulted in reduced ability of patients to pay for private health care (for example, some patients became unemployed or had to take large pay cuts). This shifted more activity to the public sector, resulting in backlogs and further unused capacity in the private sector. Significant budgetary cuts were made across the board, including to cancer care, as well as the new charges introduced for cancer patients.

In 2019, the new General Healthcare System was established, which is considered a huge step forward for population coverage, as it extended entitlement to publicly financed health care services to all legal residents, including people from non-EU countries (Kontemeniotis & Theodorou, 2020). In principle, all those legally resident in Cyprus are now covered, and protection from user charges has been strengthened (OECD & European Observatory on Health Systems and Policies, 2019). Currently there are no user charges for a visit to a GP, and the fee for a specialist visit is EUR 6. However, radiology and radiodiagnostics visits have a EUR 10 charge per service. Overall, there is an annual cap on user charges. Citizens pay a standard fee of EUR 150 per person per year, except people receiving the guaranteed minimum income, pensioners on low incomes and those aged under 21 years, who pay half the standard fee.

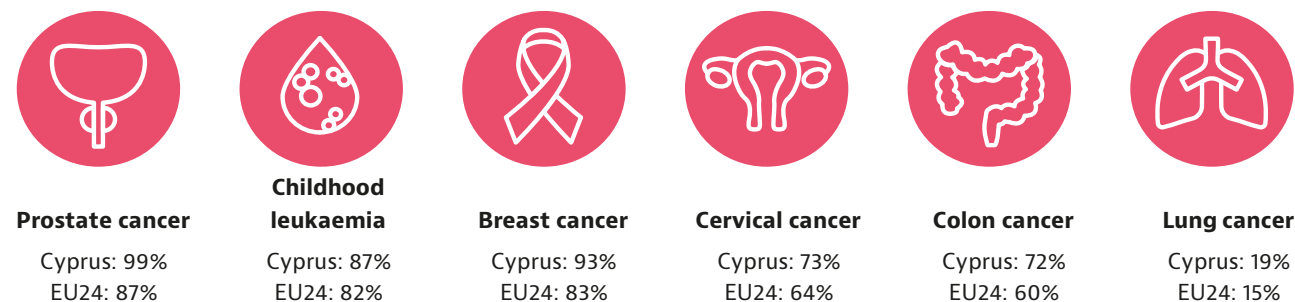
## 5.2 Quality

### Five-year survival rates are above the EU average

Even though the available data do not represent the whole population – so estimates might be somewhat unreliable – Cyprus seems to perform

better than most EU countries in terms of five-year net survival rates. Cypriot adults experienced high five-year survival rates for the most common cancers: colon (72 %), breast (93 %), prostate (99 %) and cervical (73 %) cancers (Figure 11).

**Figure 11. Cyprus has among the highest cancer survival rates in the EU**



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

### Low numbers of cancer procedures hinder quality of care

The relatively small number of patients treated for each cancer type per year in Cyprus – in combination with fragmentation of cancer services resulting in even smaller number of patients treated per oncology centre/unit – may have a detrimental effect on quality of care. The result is a lack of a critical mass of patients to maintain expertise in treatment of rarer cancers and difficulty in maintaining multidisciplinary teams for each of the three centres.

Furthermore, it can result in an increase in the cost of care, as a result of lower activity levels and reduced cost-effectiveness for each of the providers, resulting in low value for money in unit cost terms. Action should be considered to reorganise cancer services to improve collaboration between all oncology providers, centralise services for rare cancers, define treatment pathways, make compulsory discussion of all patients in multidisciplinary team meetings and offer treatment by experienced units as evidenced by workload and regular monitoring of outcomes. Beyond improvements in quality of care, centralisation of services is also likely to result in more cost-effective care.

### The new National Cancer Strategy will contribute to strengthening the Cyprus Cancer Registry

The Cyprus Cancer Registry has been operational since 1990, and has information on cancer cases

from 1998. It includes a population registry, which is the main source of information for calculation of various cancer indicators (such as incidence, prevalence, mortality and survival); a cancer registry where all malignancies and epithelial cancers are recorded, with the exception of non-melanoma skin cancers; a geographical registry where spatial distribution is depicted; a personal registry, which includes all who have received care for cancer, regardless of residency; and an age registry including children.

The Health Monitoring Unit of the Ministry of Health, responsible for the Cyprus Cancer Registry since 2008, ensures continuity and funding. One of the pillars of the National Cancer Strategy is to upgrade the Registry. The priorities set out in the Strategy are inclusion of the Registry in the National Cancer Institute; development of a legal framework to ensure universal data coverage in line with EU standards; training of health professionals to input primary data correctly; interconnectivity with other registries such as mortality and screening registries; and collaboration with ECIS and continuing co-operation with the Middle East Cancer Consortium.

### Cyprus has been investing in cancer research

As a response to the need for a dedicated centre of excellence in cancer research in Cyprus and following the mandate of the National Cancer Strategy, the Cyprus Cancer Research Institute (CCRI) started its operations in 2020, with the aim

to become a leading cancer research institute, from clinical research to global research analyses and diagnostic tools development. The CCRI is a partnership of the Bank of Cyprus Oncology Centre (BOCOC), the Karaiskakio Foundation and the University of Cyprus. Part of the latter, is the Cancer Biophysics Laboratory which uses innovative methods with state-of-the-art experimental techniques to investigate the mechanopathology of cancer and provide information on tumor growth, progression and treatment. However, according to the Organisation of European Cancer Institutes (OECI), Cyprus is one of the nine EU Member States that do not have yet an accredited comprehensive cancer infrastructure (CCI).

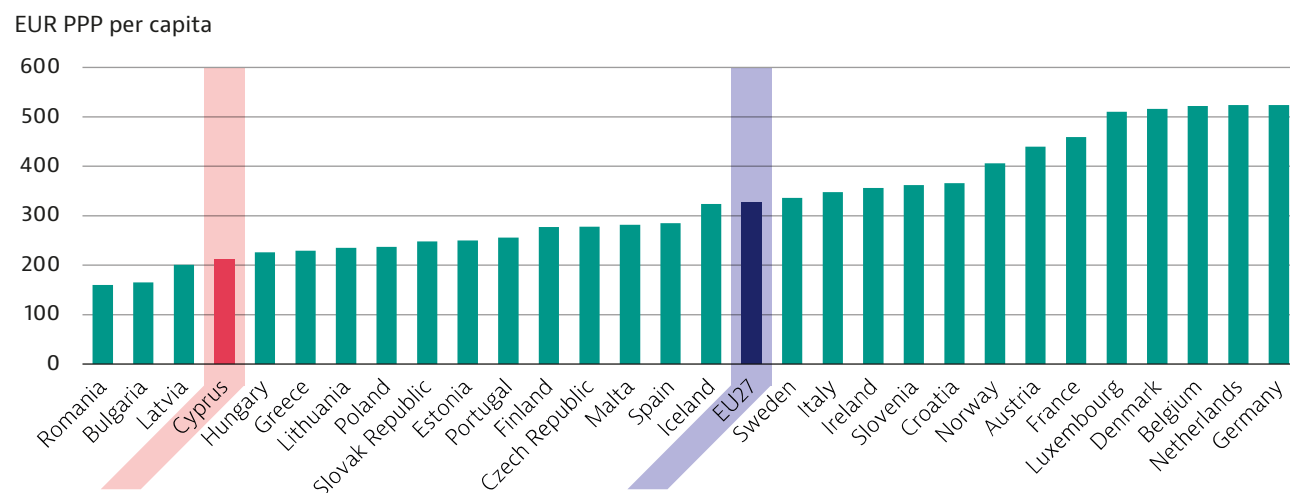
### 5.3 Costs and value for money

In 2020, the country recorded a large increase in government expenditure devoted to health as a share of GDP, from 3.5 % in 2019 to 8.1 % in 2020. This is linked to the reform introduced in June 2019, which aims to extend coverage to the whole population, and to address fragmentation, long waiting times and high out-of-pocket payments (Kontemeniotis & Theodorou, 2020).

### Expenditure on cancer care in Cyprus is among the lowest in the EU

To estimate the financial burden of cancer on households and patients, both direct and indirect costs must be considered. Direct costs include those associated with treatment, medicines, hospitalisation, surgery – if any – and clinical aspects of cancer like diagnostic examinations and recurring appointments with doctors. Indirect costs are related to non-clinical costs like transfer to treatment and accommodation if needed, payment of a carer, loss of income and extra costs associated with the social aspects of cancer in support of patients and their families or carers. In 2018, the estimated total cost of cancer in Cyprus was around EUR 160 million. About 55 % of this corresponded to direct costs incurred within the health system. Approximately 15 % was due to the opportunity cost of forgone time caused by provision of unpaid care by relatives. The remaining 30 % resulted from the productivity losses attributed to morbidity and premature mortality. Overall, the economic cost of cancer accounted for EUR 211 per capita in Cyprus after adjusting for purchasing power parity (PPP), which is lower than the EUR 326 per capita EU average (Figure 12).

**Figure 12. Per capita expenditure on cancer care in Cyprus is among the lowest in the EU**



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

### The financial crisis reduced access to medicines but paved the way for health technology assessment

During the financial crisis, the total drugs budget was reduced by 10 %. As a result, the Cyprus Pharmaceutical Services (responsible for the overall drugs budget) have been involved in a major effort to identify potential cost savings. Savings were

made possible by a conscious effort to introduce generic drugs with the expiry of patents for a number of important anti-cancer agents (including Imatinib, Temozolomide, Capecitabine and Zoledronic acid), and to negotiate discounts from pharmaceutical companies for cancer drugs in the positive list.

As an example of these policies, despite a significant year-on-year increase in patient activity



and chemotherapy use in the BOCOC, its cancer drugs budget decreased from EUR 12.6 million in 2012 prior to the crisis to EUR 9.2 million in 2015. Despite these savings, however, and due to the 10 % reduction in the total drugs budget of the Cyprus Pharmaceutical Services, there was a need to introduce more intense rationing for access to oncology drugs. As a result, fewer new drugs were approved, impairing patient access. This triggered a decision to bolster the country's health technology assessment capacity so that appropriate decisions could be made on approving cost-effective therapies. Cyprus is now in the process of formally setting up a health technology assessment agency.

## 5.4 COVID-19 and cancer: building resilience

### As in most countries, the pandemic hindered access to cancer care and services

Financing reforms introduced shortly before the COVID-19 pandemic allowed greater flexibility in building resilience and developing surge capacity. The main capacity constraint was the ongoing shortage of health workers, which also affected access to cancer care. The pandemic has affected most EU countries in terms of access to cancer care and treatment, waiting times, prioritisation of surgical lists, availability of surgical time and consultations for oncology patients.

A study among surgical oncology practices in Greece and Cyprus aimed to evaluate surgeons' perceptions of the impact of COVID-19 in both countries during the first (March-June 2020) and second (November 2020-January 2021) waves of the pandemic. According to the results, there was a significant shift between the two waves in patients' willingness to undergo surgery and to present at consultations. Nonetheless, availability of surgical services remained limited. The research highlights surgeons' concern about the potential impact on cancer patient survival in both waves. A mismatch in patients' needs and the availability of health care services was identified that should be taken into consideration by policy makers (Magouliotis et al., 2021). According to PASYKAF, the COVID-19 pandemic has affected overall participation in routine cancer screening dramatically.

### Access to medicines was affected by COVID-19 and the withdrawal of the United Kingdom from the EU

Being an island, the pandemic affected access to medicines even more than in other countries, because of the rapid reduction in incoming flight numbers. Significant delays were reported in receiving cancer treatment due to the circumstances, which affected the course of the disease and the quality of life of patients – for example, in the case of lack of availability of opioids to treat pain.

Access to medicines and medical devices in Cyprus was also affected by the withdrawal of the United Kingdom from the EU (Brexit). Historically, medicines in Cyprus have been primarily sourced through the United Kingdom, but Brexit has resulted in smaller and less frequent shipments, as well as increased difficulties for pharmaceutical companies in Britain in complying with EU laws. To address the situation and avoid shortages of medicines, Cyprus, along with Ireland and Malta, now benefits from certain exemptions for a period of three years. During this period, Cypriot importers of medicines from the United Kingdom will not need to hold marketing authorisations; nor will these medicines need to be batch tested again if they have already been tested in the United Kingdom. This will give operators more time to adapt. Work on a long-term solution is ongoing in the context of the EU's Pharmaceutical Strategy.



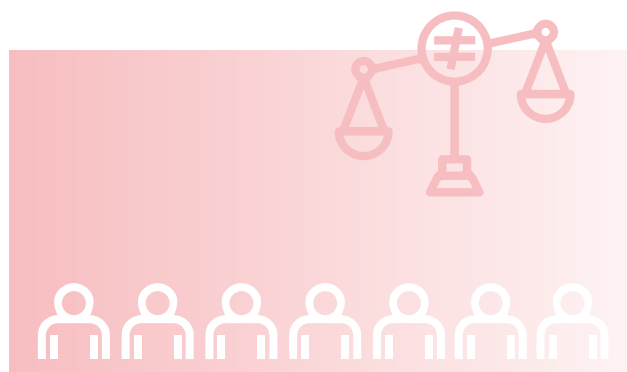
## 6. Spotlight on inequalities

Cyprus has among the lowest cancer incidence and mortality rates in the EU. Lung cancer in men and breast cancer in women are the most frequent causes of death by cancer. Notably, even though the overall rate is limited, incidence of thyroid cancer in women is high compared to other EU countries. There are large inequalities in cancer prevention and access to early diagnosis across gender and socio-economic groups in Cyprus:

- Smoking is a major public health concern in Cyprus. Smoking rates among men (30.1 %) were significantly higher than among women (12.8 %), this is reflected in the high lung cancer mortality rate in men. A larger proportion of adults in Cyprus with higher than with lower education levels are daily smokers (20 % vs. 16.5 %).
- People with lower education levels are at greater risk for overweight and obesity, as they exercise less and consume less fruit and vegetables than those with higher education levels.
- Only breast cancer has a national population-based screening programme. Inequalities in access to screening services have been identified – particularly across income and educational attainment groups, and especially for cervical cancer. In 2019, fewer women on lower (41.2 %) than higher (78.4 %) incomes were screened for cervical cancer, and this income gap is among the highest in the EU.
- Although colorectal cancer is the fourth most common cancer type in Cyprus, it is estimated that between 2017 and 2019 only 3.3 % of the population underwent a colorectal screening test, which is among the lowest in the EU. Cultural and social aspects of colorectal cancer might affect uptake of screening via colonoscopy, especially for those aged of 50 years and over. Health literacy and awareness could help to address this issue.

Cyprus developed a National Cancer Strategy in 2019, which includes the aim to expand screening. The Strategy is in line with the Europe's Beating Cancer Plan and is developed around five action pillars: prevention; early detection and treatment; psychosocial support, rehabilitation and palliative care; surveillance and cancer registry; and research. Early detection of cancer in the primary care level is one of the targets of the newly established General Healthcare System.

Access to cancer services was affected by the 2012-2013 financial crisis and associated cost-containment measures. In addition, the relative isolation of the country and small size of the population make medicine procurement particularly challenging. Budget cuts in the public sector due to low levels of public health expenditure created capacity issues and led people to the private sector, forcing them to acquire private health insurance. The enlarged private health care services absorb health workforce, taking staff away from the public sector and creating barriers in access for groups on lower incomes and substantial socioeconomic 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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