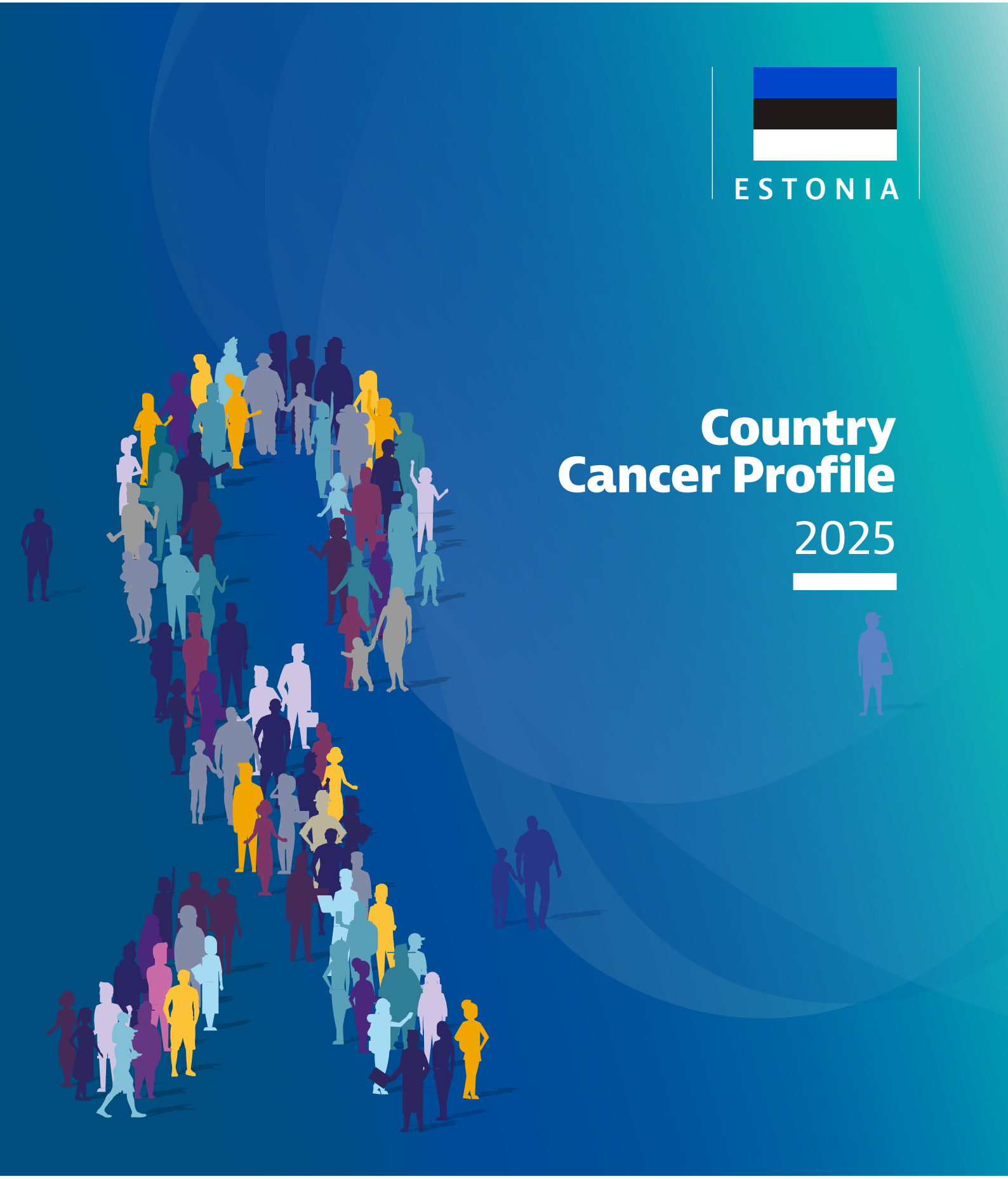
European Cancer Inequalities Registry



ESTONIA

Country Cancer Profile

2025

European Commission

OECD

BETTER POLICIES FOR BETTER LIVES

The Country Cancer Profile Series

The European Cancer Inequalities Registry is a flagship initiative of 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, regions and population groups. 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 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 Thematic Working 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 and information also come from the European Commission's Joint Research Centre (EC-JRC), the EU statistics on income and living conditions (EU-SILC) Survey, the World Health Organization (WHO), the International Agency for Research on Cancer (IARC), the International Atomic Energy Agency (IAEA), the European Society for Paediatric Oncology (SIOPE), the European Union Agency for Fundamental Rights (FRA LGBTIQ), the Health Behaviour in School-aged Children (HBSC) survey as well as from the 2023 Country Health and Cancer Profiles, 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. Mortality and incidence rates are age-standardised to the European standard population adopted by Eurostat in 2013.

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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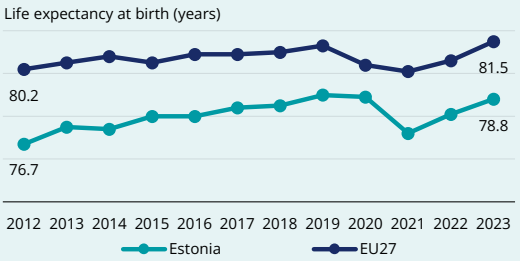
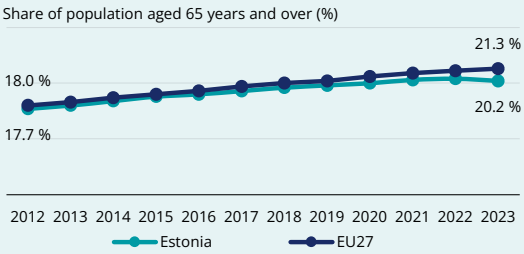
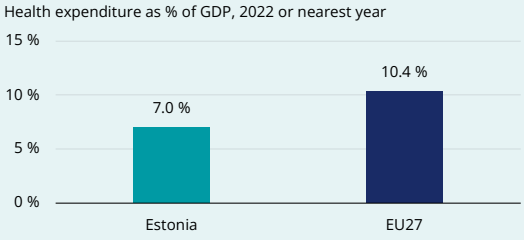
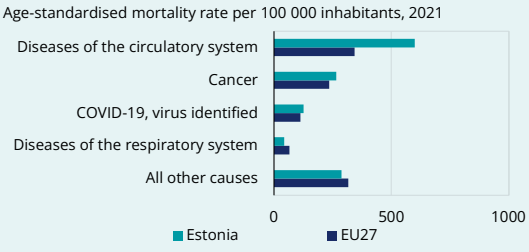


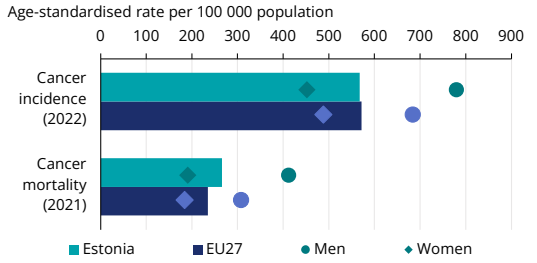






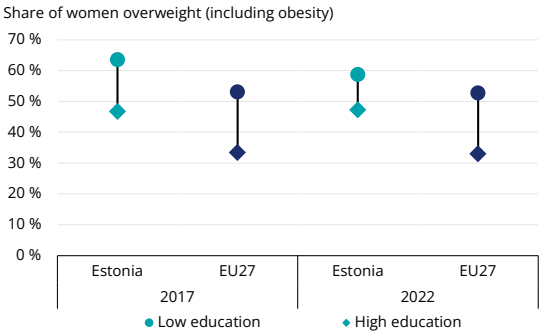
Source: Eurostat Database.

1. Highlights



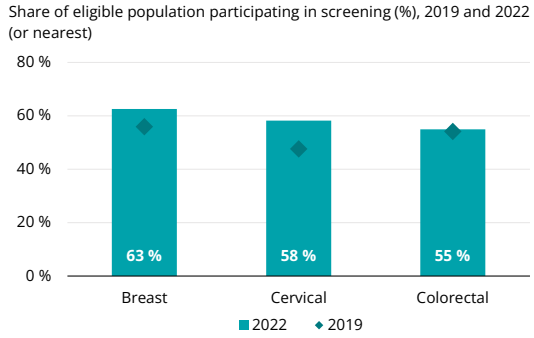
Cancer in Estonia

In 2022, estimated cancer incidence in Estonia was above the EU average for men but below the average for women. The gender disparity in cancer mortality was among the highest in the EU, as the rate in men was more than double that in women. Following sustained progress in cancer survival rates, lifetime cancer prevalence increased by almost 40% between 2010 and 2020. The objectives of the Estonian Cancer Control Plan 2021-30 will be subject to a mid-term review in 2025.



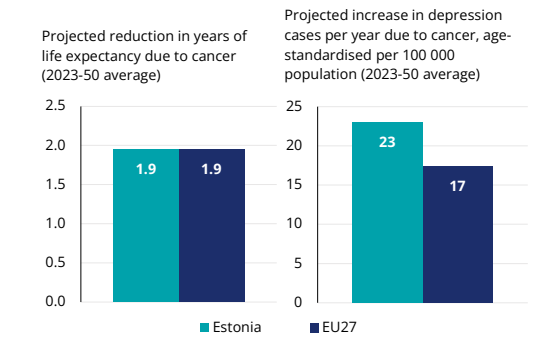
Risk factors and prevention policies

Although daily smoking prevalence has decreased significantly, Estonians perform worse than the EU average on several risk factors, including overweight and fruit and vegetable consumption. However, socio-economic gaps in overweight among women are smaller in Estonia than in the EU on average and have decreased in recent years. Alcohol consumption has increased in the country due to increasing affordability and is among the highest in the EU at 11.2 litres per capita in 2022. Additionally, part of the decrease in smoking rates can be attributed to increases in the use of electronic cigarettes, which are particularly prevalent among young people.



Early detection

In 2023, Estonia's national breast, cervical and colorectal cancer screening programmes had the highest participation rates ever recorded. This followed concerted efforts to increase accessibility and awareness of the programmes through various means, such as home self-sampling tests for HPV and mobile mammography vans visiting rural areas. Lung cancer screening has been piloted in one county, and a feasibility study for prostate cancer screening is under way.



Cancer care performance

Five year cancer survival rates have improved from 54% for cancers diagnosed in 2007-11 to 58% for those diagnosed in 2017-21. Estonia has centralised cancer care and is developing personalised medicine and person-centred approaches to assessing quality of care. However, key are a lack of consistent monitoring of the waiting times and ensuring sufficient workforce. Access and availability of cancer medication and diagnosis and treatment modalities are also a priority. Palliative care in Estonia is fragmented, with gaps in services – particularly in remote areas. Between 2023-50, cancer is expected to lead to a higher incidence of depression in Estonia than the EU on average, though the impact of cancer on life expectancy is similar.

2. Cancer in Estonia

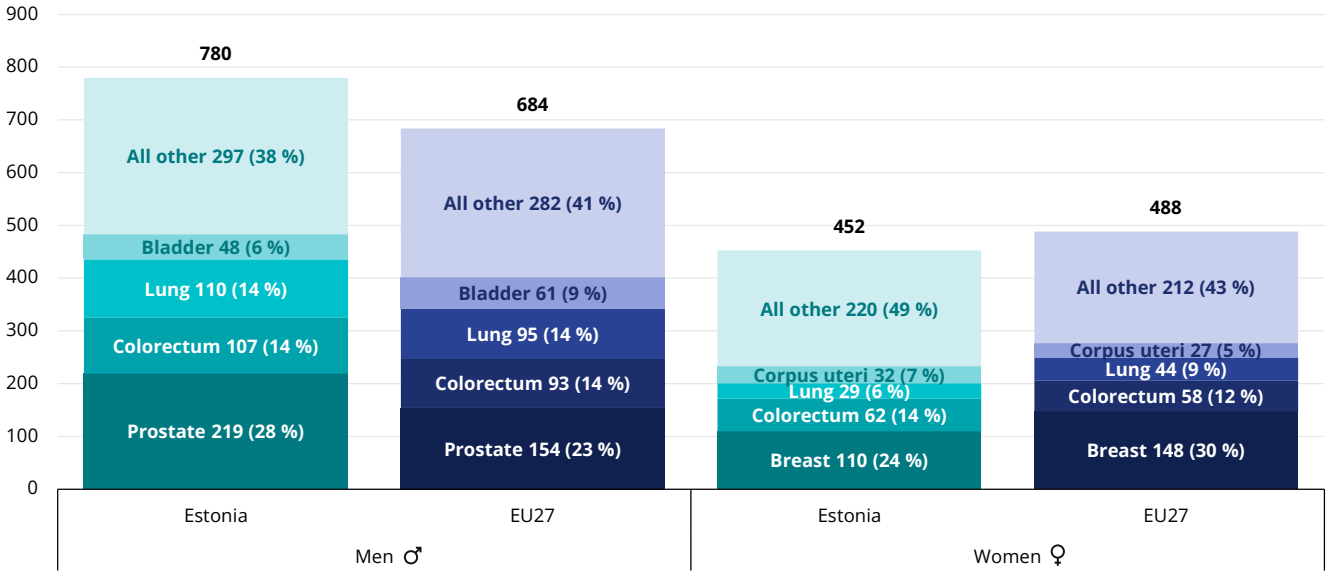
Cancer incidence in Estonia is above the EU average for men but below the average for women

According to the European Cancer Information System (ECIS) of the Joint Research Centre based on incidence trends from pre-pandemic years, in 2022, there were an estimated 7 817 incident cases of cancer in Estonia – 3 726 among women and 4 091 among men. For men, the estimated age-adjusted incidence was 780 cases per 100 000 population, which is the sixth highest rate in the EU and 14% above the EU average (Figure 1). Among women, the estimated incidence was 452 per 100 000 population, which is 7% below the EU average.

Prostate cancer accounted for the largest proportion of cancer cases among Estonian men (28%), with an incidence rate 42% higher than the EU average. The second most common cancer among men was colorectal cancer (14%), followed by lung cancer (14%)[1]. Among women, breast cancer was the most common cancer in Estonia, accounting for 24% of all cancer cases, although the incidence rate was 26% lower than the EU average. Regionally, recorded incidence of cancer varied widely across Estonian counties in 2021. It was highest for both genders in southern and eastern counties, and lowest in the urban Tallinn and Tartu regions (NIHD, 2024a).

Figure 1. Cancer incidence in Estonia is higher than the EU average among men, but lower among women

Age-standardised incidence rate per 100 000 population, estimates, 2022



Notes: 2022 figures are estimates based on incidence trends from previous years, and may differ from observed rates in more recent years. Includes all cancer sites except non-melanoma skin cancer. Corpus uteri does not include cancer of the cervix.
Source: European Cancer Information System (ECIS). From https://ecis.jrc.ec.europa.eu, accessed on 10 March 2024. © European Union, 2024. The incidence percentage breakdown was re-computed based on age-standardised incidence rates and as such differs from the percentage breakdown of absolute numbers shown on the ECIS website.

Compared to 2000, crude cancer incidence in Estonia in 2019 had increased for both sexes: by 55% for men and 44% for women (NIHD, 2024a). However, after adjusting for the effects of population ageing, cancer incidence rates have remained stable since 2010 for both men and women. Among men, age-adjusted incidence of lung cancer has been decreasing since the late 1990s (Zimmermann et al., 2024), however, the incidence of breast cancer among women is increasing (NIHD, 2024b). In 2021, total cancer incidence in both sexes was 8% lower across

1 *Lung cancer also refers to trachea and bronchus cancers.*

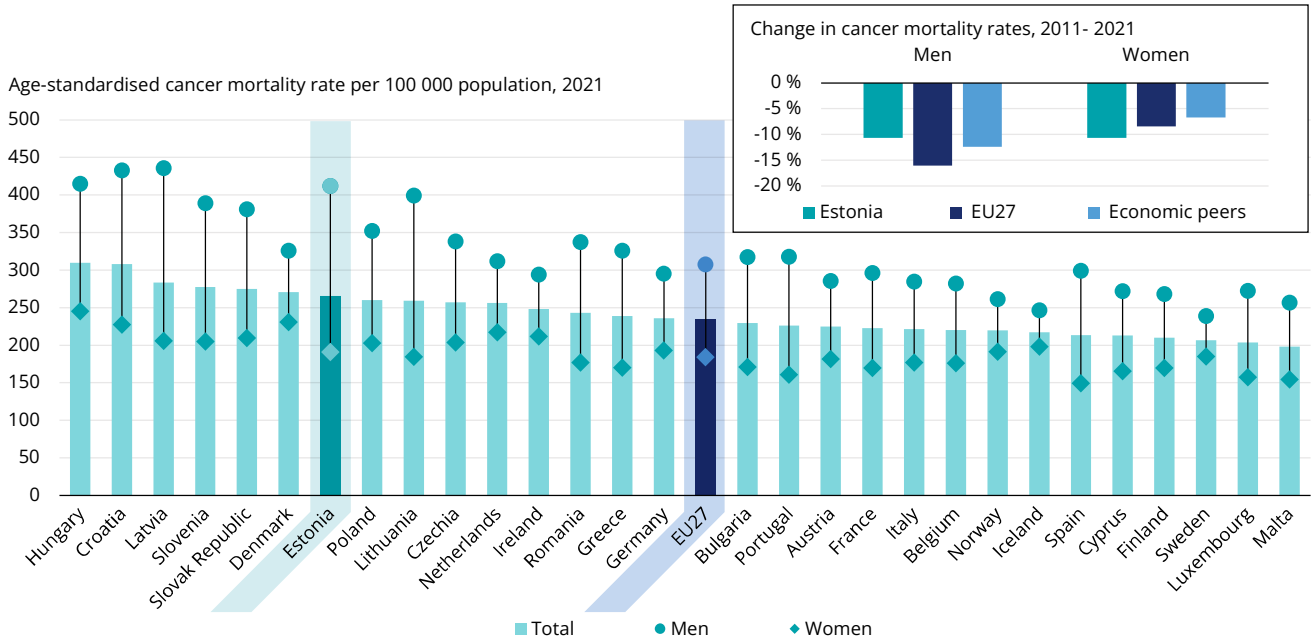
Estonia than the five-year mean (2015-19) pre-COVID-19 pandemic, in part due to delays in diagnosis for some cancers that was observed in both 2020 and 2021. A part of the decline can be attributed to the long-term reduction in risk factors (e.g. lung and stomach cancer) and to the effects of the cervical cancer screening programme (Zimmermann et al., 2024). However, looking forward, ECIS estimates that the number of cancer cases will increase by 19% between 2022 and 2040.

Cancer accounts for a fifth of all deaths in Estonia

In 2021, the age-standardised mortality rate from cancer in Estonia was 266 per 100 000 population, accounting for 20% of all deaths, and was 13% higher than the EU average. Estonian men had the fourth highest cancer mortality rate in the EU (34% above), while mortality rates among women were closer to the EU average (4% above). However, mortality rates from all cancers had decreased by 11% for both men and women since 2011. It should be noted that the reduction among men was smaller than the average reductions across the EU and among Estonia's economic peers,[2] while among women, the reductions were greater than the averages across other countries (Figure 2).

Although mortality from lung cancer has decreased by 16% in Estonia since 2011, it remained the most frequent cause of death from cancer in 2021, representing 16% of all cancer deaths, followed by colorectal cancer at 13%.

Figure 2. Estonia has one of the EU's largest gender gaps in cancer mortality



Notes: Economic peers are defined as tercile clusters based on 2022 GDP per capita in purchasing power standard terms. Economic peers for EE are BG, EL, HR, HU, LV, PL, PT, RO and SK.
Source: Eurostat Database.

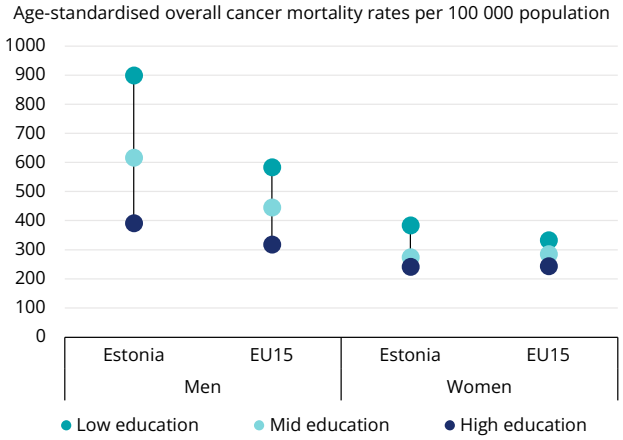
The gender gap in cancer mortality in Estonia is among the highest in the EU

Alongside Latvia and Lithuania, Estonia is one of the three countries in the EU where the cancer mortality rate is more than twice as high among men as among women, resulting in one of the largest gender gaps in the EU. The largest gap in mortality compared to the EU average was among older men: those aged over 65 had a 37% higher mortality rate than the EU average – the third highest in the EU after Croatia and Latvia. As elsewhere in the EU, the mortality reduction from 2011 to 2022 was substantially larger among younger individuals. The decline was larger among men under 65 (25%) than over 65 (7%) and larger among women under 65 (26%) than over 65 (5%).

Social inequalities in cancer mortality by education in Estonia are particularly large. Among men, the gap between those with lower and higher education levels is nearly 130% (compared to a gap of 84% across the EU); among women, the gap is nearly 60% (compared to a gap of 36% across the EU) (Figure 3).

2 *Economic peers are defined as tercile clusters based on 2022 GDP per capita in purchasing power standard terms. Economic peers for EE are BG, EL, HR, HU, LV, PL, PT, RO and SK.*

Figure 3. Estonian men with lower education levels have a mortality rate more than twice as high as those with higher education levels



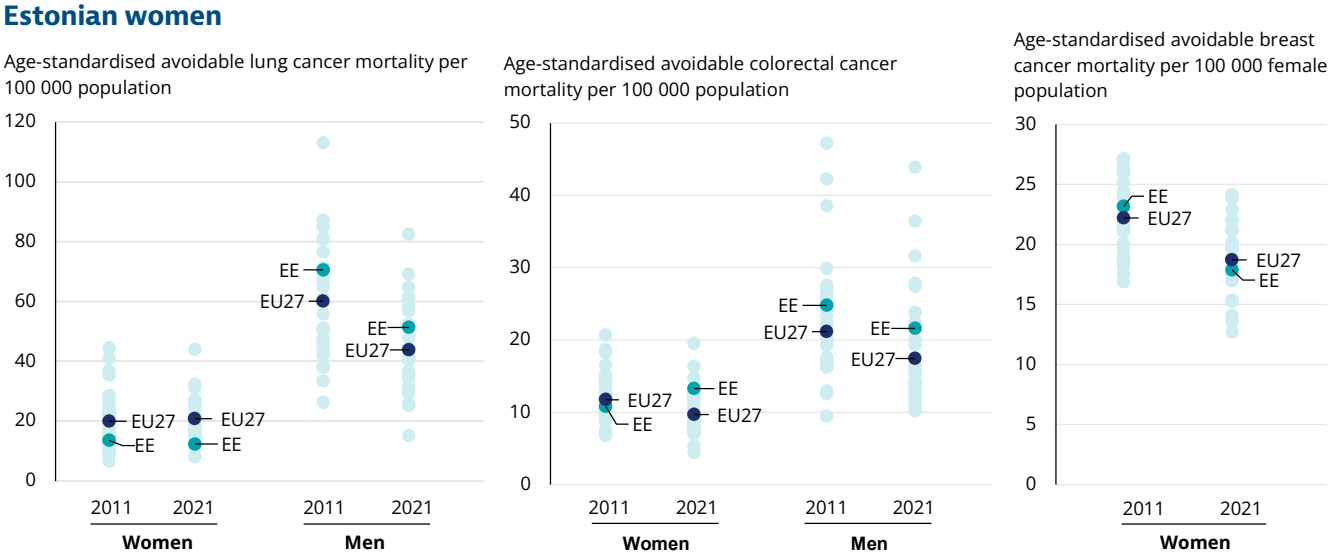
Notes: Data come from the EU-CanIneq study and refer to 2015-19. EU15 refers to unweighted average of 14 EU countries and Norway.
Source: European Commission/IARC/Erasmus MC (2024), Mapping Socio-economic Inequalities in Cancer Mortality across European Countries. ECIR Inequalities factsheet.

While preventable mortality from lung cancer is declining, treatable mortality from colorectal cancer is cause for concern

In 2021 in Estonia, avoidable mortality[3] from lung cancer, which is classed as preventable, was 12 per 100 000 population among women (41% lower than the EU average) and 51 per 100 000 for men (17% higher than the EU average). Compared to 2011, the rate had decreased by 9% for women and by 27% for men (Figure 4), in line with corresponding reductions in smoking prevalence (see Section 3)

Treatable breast cancer mortality in Estonia was 18 per 100 000 women in 2021, which is 4% lower than the EU average. This represents a reduction of 23% compared to 2011, which is a greater decrease than the EU average. Treatable mortality from colorectal cancer in Estonia was notably higher – 37% higher for women and 24% higher for men than the EU averages. Compared to 2011, the standardised rate in 2021 was higher by 23% among women, although the number of treatable deaths in both genders consecutively decreased in 2022 and 2023. This should be considered in the light of Estonia's narrow age ranges for colorectal cancer screening (see Section 4), which may lead to later diagnosis and more complicated treatment.

Figure 4. Despite reductions among men, the colorectal cancer mortality rate has risen among Estonian women



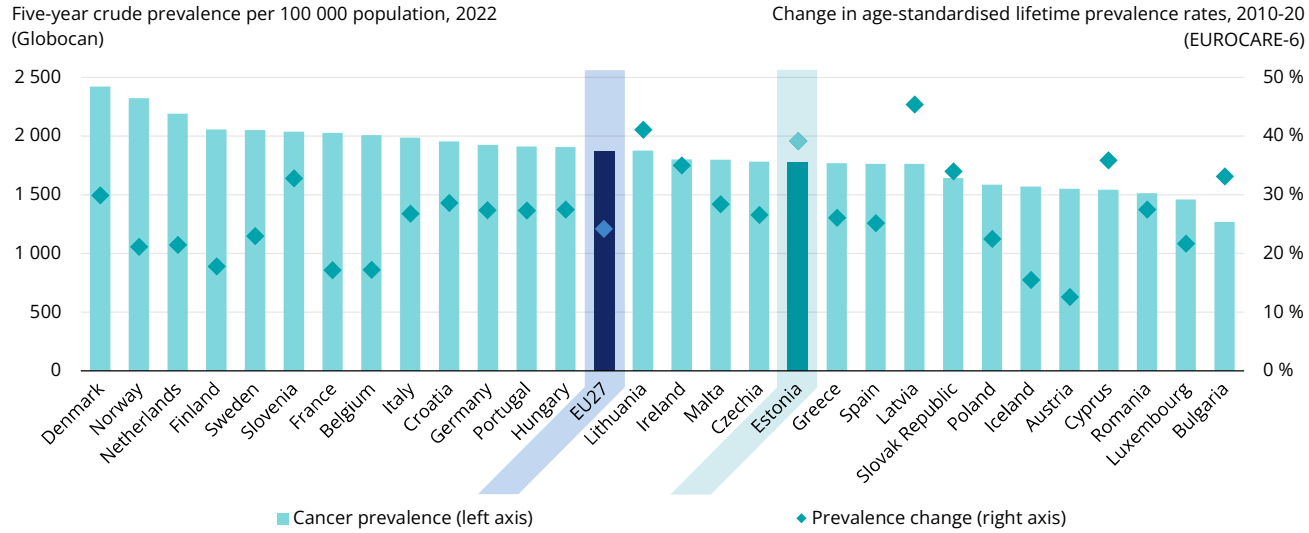
Note: Avoidable mortality figures relate to deaths of people aged under 75.
Source: Eurostat Database. Data refer to 2021.

3 *Avoidable mortality includes both preventable deaths that can be avoided through effective public health and prevention interventions, and treatable deaths that can be avoided through timely and effective healthcare interventions.*

Cancer prevalence in Estonia has increased by more than a third since 2010

In 2022, Estonia had five-year prevalence[4] of 1 780 cancer cases per 100 000 population, which is 5% lower than the EU average. Due to changes in incidence of some cancers and improvements in survival (see Section 5.2.), lifetime age-standardised cancer prevalence in the country increased by 39% between 2010 and 2020 (Figure 5). Although this is among the fastest relative increases across the EU, it should be noted that in 2010 Estonia had the sixth lowest lifetime prevalence of cancer in the EU. The prevalence changes reflect improvements in early detection, accessibility and quality of cancer care, and have wide implications for the need for long-term care and psychosocial support for people living with cancer and cancer survivors.

Figure 5. Lifetime prevalence of cancer is increasing at a fast pace in Estonia



Sources: IARC Globocan Database 2024; EUROCARE-6 study (De Angelis et al., 2024).

The Estonian Cancer Control Plan 2021-30 will undergo a mid-term evaluation in 2025

Since 2021, Estonia has embarked on a comprehensive effort to improve cancer control through the Cancer Control Plan 2021-30 (MoSA & NIHD, 2021) (Box 1). A continuous implementation plan is used to review the activities of the various stakeholders on a regular basis. Despite delays in implementation due to COVID-19, progress towards the goals of the Cancer Control Plan will be evaluated in 2025, aligning with the mid-point evaluation of the Estonian National Health Plan 2020-30.

The Estonian Cancer Registry contains more than 50 years of data, which includes all malignant sites – including in situ and some borderline tumours. The Registry follows a person with a diagnosis of cancer throughout their life, collecting data about incidence, mortality, survival, cancer stage, diagnosis and treatment from different sources. The National Institute for Health Development (NIHD) leads prevention and screening activities – alongside the Estonian Health Insurance Fund (EHIF) as the funder. Data collection and process indicators are a focus area for improvement, as information on key areas such as waiting times from cancer suspicion to diagnosis and treatment are missing. To improve monitoring, efforts to standardise data structures across cancer centres are under way.

4 *Cancer prevalence refers to the proportion of the population who have been diagnosed with cancer and are still alive, including those currently undergoing treatment for cancer and those who have completed treatment. Five-year cancer prevalence includes people who have been diagnosed within the previous five years, while lifetime prevalence considers those who have ever received a cancer diagnosis.*

Box 1. Estonia's Cancer Control Plan 2020-30 is broadly aligned with the key pillars in Europe's Beating Cancer Plan

Estonia published a revised Cancer Control Plan for 2021-30, aligning its priorities with the Europe's Cancer Beating Plan on several pillars and transversal themes (Table 1). The Plan aims to combat most common risk factors; address challenges in co-ordinating and evaluating screening programmes through quality indicators; implement a patient-centred, personalised and systematic approach to diagnosis; and enhance access to psychological and social support and oncological rehabilitation services for cancer patients. The Plan also prioritises paediatric services (Section 6). However, although inequalities and research are discussed in various sections, they are not given specific focus in the Plan.

Table 1. Estonia's Cancer Control Plan aligns in part with Europe's Beating Cancer Plan

Pillars of EBCP				Transversal themes of EBCP		
Prevention	Early Detection	Diagnosis and treatment	Quality of life	Cancer inequalities	Paediatric cancer	Research and innovation
●	●	●	●	●	●	●

Notes: EBCP = Europe's Beating Cancer Plan; Blue indicates that the Cancer Control Plan includes a specific section on the topic; orange indicates that the topic is covered in one of the Plan's sections without being the only focus; and pink indicates that this topic is not covered in the Plan.
Source: Adapted from "Study on mapping and evaluating the implementation of Europe's Beating Cancer Plan" (not yet published).

3. Risk factors and prevention policies

Estonia makes reduction of cancer risk factors in the population a high priority

The share of total health expenditure allocated to prevention in Estonia in 2019 was 4%[5]. Following increased spending of up to 9% of total health expenditure on COVID-19-related activities in the following years, in 2022, the proportion spent on prevention was 6%. It is important to note that Estonia is a low spender on healthcare compared to the EU average, and although the proportion of total health expenditure spent on prevention was above the EU average, Estonia's prevention spending per capita in 2019, adjusted for differences in purchasing power, was 31% below the EU average.

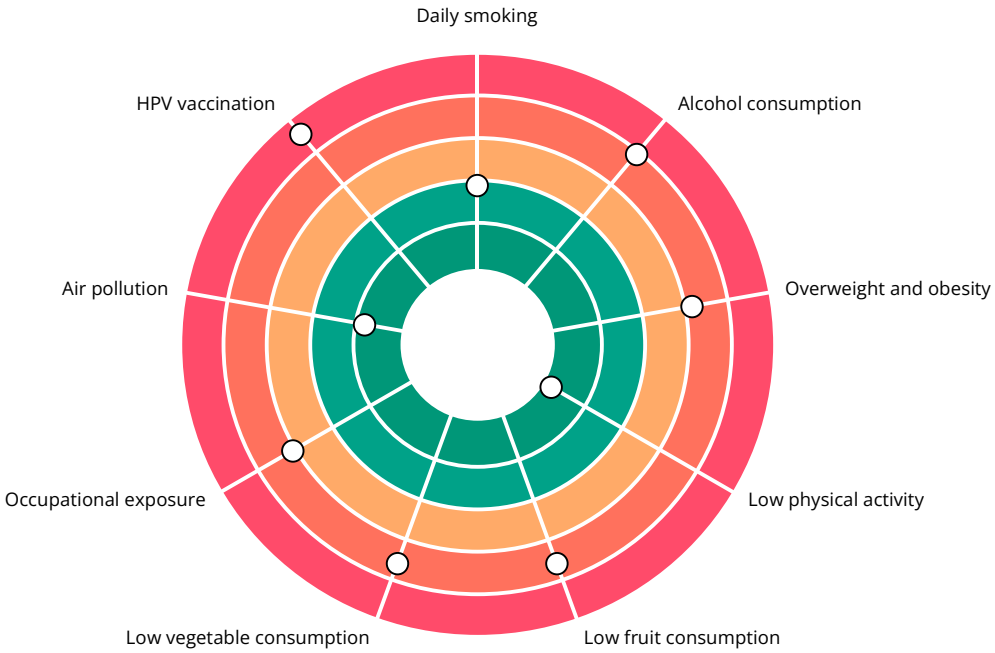
One of the main priorities of Estonia's Cancer Control Plan 2021-30 is a reduction of risk factors in the population. Several actions have been initiated to address each of the risk factors, including an emphasis on protecting adolescents from risks through more comprehensive school-based healthcare. Through a decree passed in 1995, publicly funded school nurses are employed across the country, mainly to provide health promotion and disease prevention activities. Furthermore, to implement co-ordinated strategies and best practices, the NIHD is participating in an EU joint project (Joint Action PreventNCD) aimed at preventing cancer and other non-communicable diseases through action on various risk factors.

Figure 6 shows Estonia's ranking in select risk factors relative to other EU countries, Iceland and Norway. Estonia performs well in air pollution exposure relative to other countries. However, alcohol consumption, overweight and poor dietary

5 *Prevention expenditures as reported in health accounts should include activities outside of national programmes (e.g. opportunistic cancer screening or counselling for smoking cessation during a routine physician contact), however in practice countries may have difficulty in identifying prevention spending outside of such programmes.*

habits continue to pose important risks due to their high prevalence, and the human papillomavirus (HPV) vaccination rate was among the lowest in the EU in 2023. Although data from the EU-SILC Survey show Estonia performing relatively well compared to other EU countries on daily smoking and low physical activity, national surveys suggest that these areas continue to pose challenges.

Figure 6. Estonia has a high prevalence relative to the EU average of key cancer risk factors such as alcohol consumption and overweight and obesity

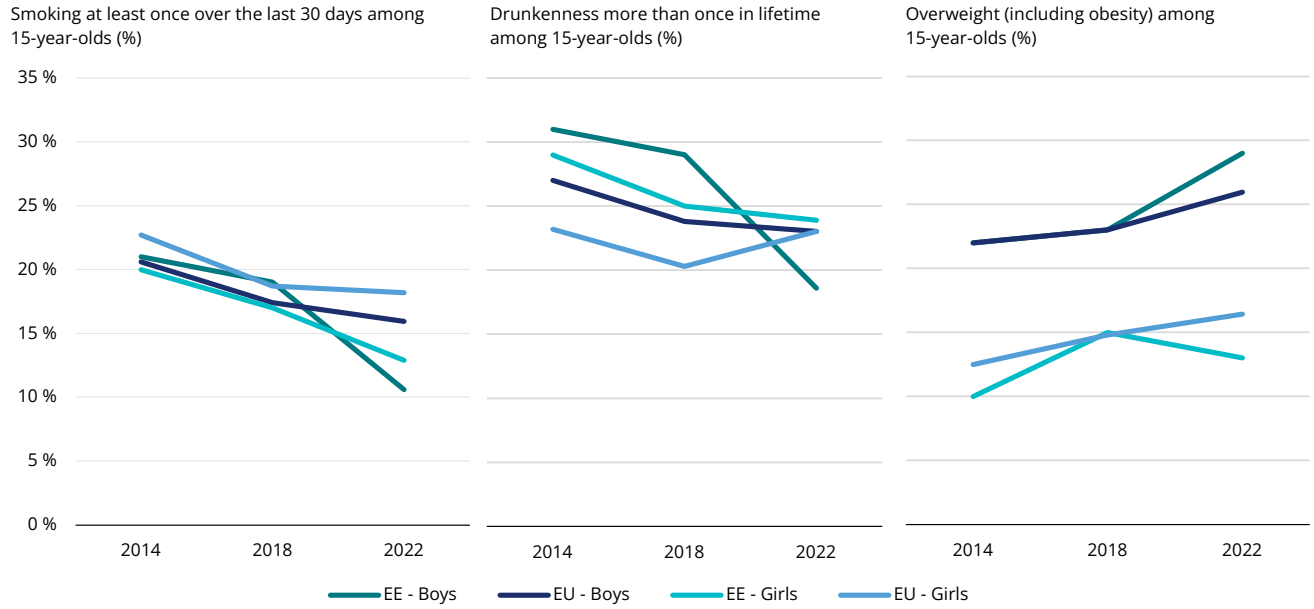


Notes: The closer the dot is to the centre, the better the country performs compared to other EU countries. No country is in the white "target area" as there is room for progress in all countries in all areas. Air pollution is measured as particulate matter with a diameter less than 2.5 micrometres ($PM_{2.5}$).
Sources: OECD calculations based on 2022 EU-SILC Survey for overweight, obesity, physical activity, fruit and vegetable consumption (in adults); Eurofound Survey for occupational exposure; OECD Health Statistics for smoking, alcohol consumption (in adults) and air pollution; and WHO for HPV vaccination (15-year-old girls).

A drop in smoking prevalence is being offset by new risks, as young people are increasingly taking up vaping

Prevalence of daily smoking in Estonia has decreased substantially since 2010 – falling by more than 10 percentage points to 16% in 2022. The reduction has been particularly steep among men, with a drop from 37% in 2010 to 21% in 2022, aligned with the decreasing incidence and mortality from lung cancer. Among 15-year-olds in Estonia, prevalence of smoking at least once in the last 30 days decreased for both genders during 2014-22, although it fell faster among boys (by 49%) than girls (by 36%) (Figure 7). This can be attributed in part to effective policies on tobacco control, most recently amended in 2019 on advertising and display of tobacco products and related items.

Figure 7. Estonian girls aged 15 are more likely to smoke and report having been drunk than boys of the same age



Notes: The EU average is unweighted. Data refer to 2022.
Source: Health Behaviour in School-aged Children Survey.

However, a part of the reduction is attributable to alternative nicotine products becoming widely available, with 10% of Estonians using them in 2022. The total figure obscures the scope of the problem among young people: nearly 30% of people aged 15-24 reported vaping regularly – 35% of women and 24% of men. Among 15-year-olds, 20% of boys and 30% of girls had used e-cigarettes at least once in the past 30 days. Since 2019, the Tobacco Act prohibits flavours and fragrances other than tobacco in e-cigarette liquids and bans remote sales of tobacco products. Yet, online purchases from abroad remain possible.

After a tax reduction on alcohol in 2019, alcohol consumption in Estonia increased

Although alcohol consumption per capita decreased from 12 litres in 2012 to 10 litres in 2018 due to systematic implementation of the activities in the Green Paper on Alcohol Policy, it rose to 11 litres in 2022, associated with increased affordability following a 2019 excise tax reduction. Regulation of alcohol in the country is complicated by the high prevalence of cross-border alcohol purchases from Latvia, requiring harmonised policy action. Although Estonia limits the hours of alcohol availability in shops, there are no restrictions on the density of outlets, taxation is not adjusted to inflation, and there are no specific health warning labels on alcohol (OECD, 2024a).

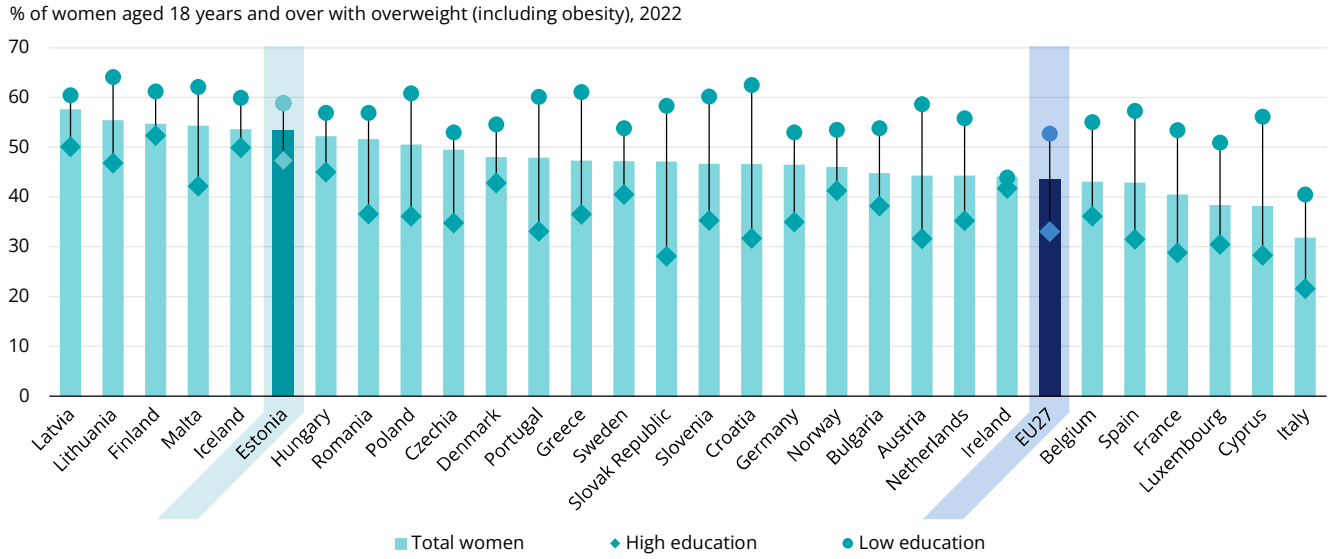
In Estonia, 4% of all cancer cases were attributable to alcohol in 2021. Yet, a 2022 survey of alcohol consumers revealed that only 11% of women identified alcohol as a risk factor for breast cancer, and only 27% of people did so for colorectal cancer, demonstrating relatively low public awareness. To increase awareness, public campaigns highlight the role of alcohol on cancer, such as Dry Month campaigns, the online self-help initiative Selge, and the European Social Fund's More Sober and Healthier Estonia Programme. Only 9% of people whose weekly alcohol consumption is considered high risk (7 standard units for women and 14 for men) reported having received a recommendation from a healthcare worker to reduce consumption, pointing to a need for further training of staff to recognise issues and intervene when needed (NIHD, 2023).

Consumption patterns have undergone some changes, as between 2012 and 2022, there was a reduction in the proportion of men drinking more than once per week (from 33% to 27%), while among women, the proportion increased (from 11% to 12%). Among women, there has been a large increase in regular consumption of wine (NIHD, 2023). Alcohol use among Estonian adolescents has declined, with drunkenness among 15-year-olds dropping by 9 percentage points between 2014 and 2022, although it remains higher than the EU average. Reversing historical gender trends, prevalence of drunkenness in the last 30 days in 2022 was higher among 15-year-old girls than boys (see Figure 7).

Overweight and obesity are increasing in Estonia for both genders

Nearly three in five (57%) adults in Estonia are overweight (including obese), and 22% are obese. Prevalence of overweight and obesity is higher among Estonian men (62%) than women (53%), although obesity on its own is higher among women (23%) than men (21%). Rates of overweight have increased for both genders compared to 2017. There is an education gradient in overweight among women (Figure 8), but not among men, although men and women with lower education levels are both more likely to report obesity than their counterparts with higher education levels.

Figure 8. Estonia has the fifth highest prevalence in the EU of overweight (including obesity) among women



Note: Overweight (including obesity) includes those with a body mass index (BMI) above 25.
Source: Eurostat Database.

In Estonia, overweight among 15-year-olds increased by 5 percentage points during 2014-22 (see Figure 7). Important gender differences already emerge as 29% of boys reported overweight in 2022 compared to 13% of girls.

Risk factors around physical activity and nutrition remain an important area of concern

More than half of Estonians reported consuming fruit (51%) and vegetables (50%) less often than once a day – more than 10 percentage points higher than the EU averages (39% for fruit and 40% for vegetables). Women and those with higher education levels were less likely to report less than daily consumption. Among 15-year-olds, more than two-thirds reported not eating fruit at least once a day – slightly less among girls (67%) than boys (74%), while almost three-quarters (73%) reported not eating vegetables daily.

To improve nutrition, a food reformulation plan has been drafted to be negotiated with the food industry from September 2023. A code of conduct on responsible advertising of unhealthy food and drink during children's television programmes was adopted in 2023, although it only applies to children under 12. Additionally, the law is voluntary and does not cover digital marketing, direct marketing or campaigns in public spaces. A sugar tax on sugar-sweetened beverages and revisions to the 1995 Public Health Law containing further restrictions on advertising was under discussion in 2024, but subsequently dropped.

Although data from the EU-SILC Survey point to Estonians having relatively low prevalence of low physical activity (i.e. exercising less than three times per week) (Figure 6), national data from 2021 classifies nearly three-quarters of Estonian adults as inactive (less than 120 min of exercise per week) (NIHD, 2024b). Estonian 15-year-old girls reported lower levels of daily physical activity (9%) than boys (15%), and both remain below the EU averages. Estonia has implemented programmes to increase physical activity among young people, including the Schools in Motion Programme, launched in 2016, which aims to bring movement and physical activity to all Estonian students

Estonia has achieved progress in air pollution, but occupational risks remain widespread

Following a series of policies adopted to improve air quality, in 2023, Estonia was one of seven countries globally that met WHO standards for $PM_{2.5}$ concentration below 5 µg/m³. This is reflected in both mean population exposure to $PM_{2.5}$ and

estimated rates of premature deaths due to exposure, which have decreased from much higher levels in preceding decades to become among the lowest in the EU.

However, occupational exposure is a concern, as around 26% of both men and women report exposure to chemical products or substances at work, which could pose a cancerogenic risk. Estonia does not have a recording system for occupational cancer deaths, however, it is estimated that up to 11% of cancers diagnosed during 2016-20 can be associated with occupational exposure, among which lung cancer, followed by non-melanoma skin cancer, formed the largest share. In 2020, Estonia's list of chemical hazards in the working environment was supplemented with the inclusion of cancer-causing substances.

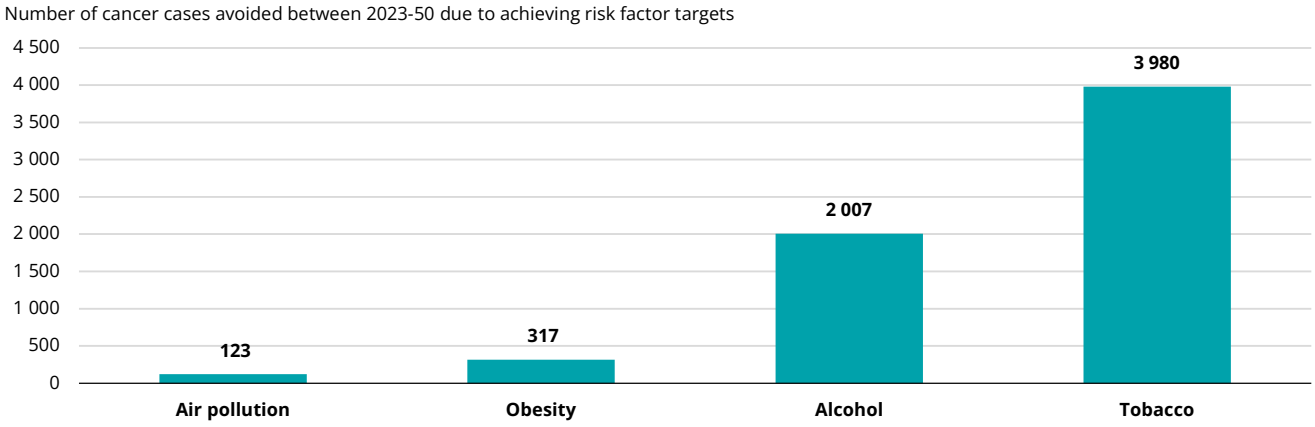
Human papillomavirus and hepatitis B vaccination coverage need to improve for targets to be met

Aiming to eliminate cervical cancer by 2040, in line with the WHO global strategy, Estonia established a vaccination programme for HPV for girls aged 12-14 in 2018; this was expanded to include boys from February 2024, and allows catch-up vaccination. In 2023, 43% of girls had received all doses of the HPV vaccine by age 15 – down from 60% in 2022, and well below the WHO target of 90% and the EU average of 64%. Concerningly, vaccination coverage with three doses of hepatitis B antigen among 1-year-olds has dropped in recent years, falling to 72% in 2023, compared to 90% in 2020 and 95% in 2007. Responding to low overall rates of vaccination, the EHIF has allocated targeted funding to awareness campaigns during 2024-28.

Estonia could prevent many cancers through decisive action on risks

According to OECD Strategic Public Health Planning (SPHeP) modelling work, relative to current cancer incidence, Estonia could prevent a number of cancer cases each year if targets were met in risk factor prevalence. For instance, meeting tobacco targets could prevent nearly 4 000 cancer cases between 2023 and 2050, while reductions in alcohol could prevent more than 2000 (Figure 9).

Figure 9. Thousands of cancer cases could be prevented between 2023-50 through decisive action to reach targets on tobacco and alcohol



Notes: The target for tobacco is a 30% reduction in tobacco use between 2010 and 2025, and less than 5% of the population using tobacco by 2040. For alcohol, the target is a reduction of at least 20% in overall alcohol consumption and a 20% reduction in heavy drinking (six or more alcoholic drinks on a single occasion for adults) between 2010 and 2030. For air pollution, it is an annual average $PM_{2.5}$ level capped at 10 µg/m³ by 2030 and at 5 µg/m³ by 2050. For obesity, the target is a reduction to the 2010 obesity level by 2025.
Source: OECD (2024b), Tackling the Impact of Cancer on Health, the Economy and Society, https://doi.org/10.1787/85e7c3ba-en.

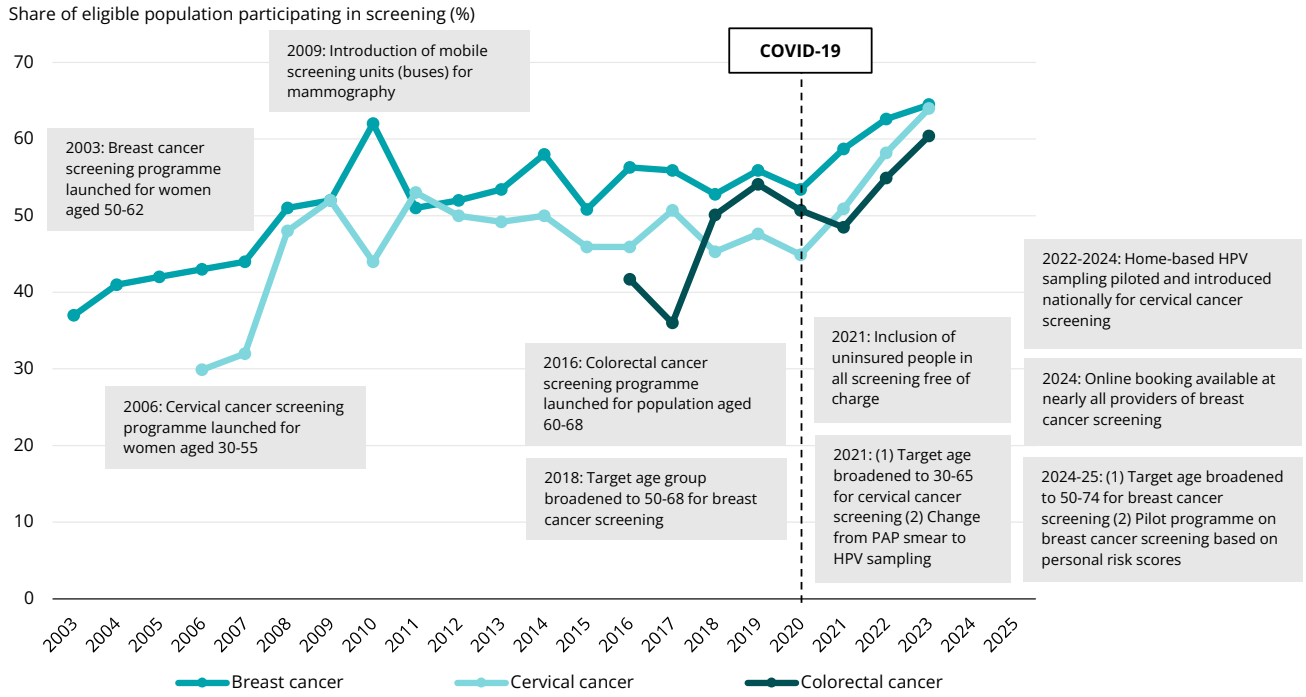
In addition, various cobenefits are offered through reductions in other chronic conditions and relieving the burden on healthcare system, including workforce shortages (see Section 5.1.). Across risk factors, gains in health status can also be made through higher health literacy, contributing to the ability to manage one's own health. Estonia does not have a national strategy to develop health literacy among people or within organisations.

4. Early detection

Estonia's cancer screening programmes reached highest ever participation rates in 2023

Estonia has been seeking ways to improve uptake, working on increasing availability, accessibility and awareness of cancer screening programmes. Figure 10 shows the evolution of annual screening participation rates in Estonia, alongside major changes that have taken place or are planned. Notably, 2023 boasted the highest ever participation in all three population-based screening programmes at above 60% each, following a rebound from the COVID-19 pandemic, when national screening programmes were stopped temporarily, and many healthcare services were limited. This caused a drop in the number of cases normally found during screening and cases with mild symptoms found randomly during health check-ups (Zimmermann et al., 2024). A key development took place in 2021, when uninsured people were included in the programme, their screening financed through the EHIF; previously, they had to pay for screening out of pocket. Between 2022 and 2023, there was a 20% increase in doctor visits among displaced people and refugees for breast and colorectal cancer screening, and a 12% increase for cervical cancer screening, mostly driven by the large influx of displaced people from Ukraine (EHIF, 2023).

Figure 10. Participation in breast, cervical and colorectal cancer screening programmes has increased markedly since 2020



Note: Programme data covering the population invited for screening each year collected from national databases are shown for all cancer types and all years covered.
Sources: OECD Health Statistics 2024 (2000-22), NIHD 2024a (2023).

The Cancer Screening Registry is evolving to better support the organisation of screening

The Cancer Screening Steering Group, led by the Ministry of Social Affairs, includes major stakeholders and patient organisations and evaluates existing screening programmes and initiate new programmes. The EHIF conducts wide awareness campaigns while the NIHD manages the Cancer Screening Registry, which covers both population-based and opportunistic screening, and has access and quality measures, which are used for quality improvement. Based on claims data, the EHIF publishes data on the three programmes in real time via an interactive platform, including

cases identified and participation rates by facility, location and age group.

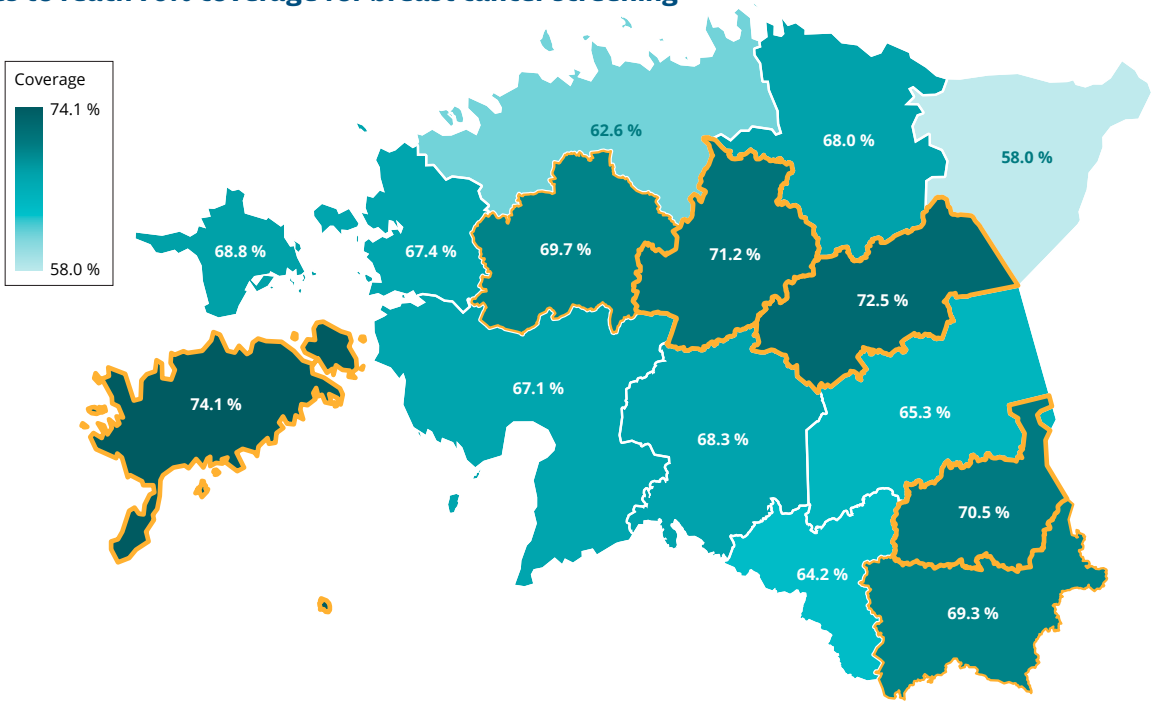
The Cancer Screening Registry receives an initial target group cohort from the population registry, based on specific birth years and gender. The Registry includes contact information of residents and is linked to electronic health records (EHR). Estonia's digitalised health information system allows it to exclude those who have either had a diagnosis of malignant tumour during a certain period or taken in a specific screening test recently. The Cancer Screening Registry sends invitations through mail, email and EHRs, alongside reminders and text messages, to the eligible population. It also prompts healthcare workers and pharmacists to remind unscreened people to take a test if they interact with the healthcare system.

Breast cancer screening target age is being expanded from 2024

Breast cancer is the most common cancer among Estonian women, and around a quarter of cases are advanced at diagnosis. The breast cancer screening programme in Estonia invites women aged 50-68 for a mammogram every two years if they have not had one within the last 12 months and have not had breast cancer in the last five years. From 2024, the upper target age is gradually increased to 74, bringing it closer to the age range of 45-74 suggested in the updated Council recommendation of 2022 (Figure 10). In 2023, 65% of the eligible population was screened – a substantial increase since 2003, when the rate was 37%. However, a key objective of the Cancer Control Plan 2021-30 is to reach 70% coverage in all groups (MoSA & NIHD, 2021). In 2023, this target was reached for breast cancer in four of Estonia's 15 counties, with two counties less than 1 percentage point below. All six are outside major urban centres, indicating that breast cancer screening is accessible to rural populations. However, coverage was substantially lower in Ida-Viru County, at below 60% (Figure 11), possibly due to lower awareness, language barriers or accessibility (ERR, 2024). The target is also likely missed among people with lower education levels, who are consistently less likely to report having received a mammogram.

Several activities are under way to increase access to screening. In 2024, online booking became available at all providers of breast cancer screening, while it was possible at only one hospital in 2023. To improve access in rural areas, three mammography buses drive around Estonia throughout the year to make screening more accessible in places where women live and work. This has been well received, and buses visit the same locations more than once per year due to popular demand, contributing to the higher rates achieved in rural areas (ERR, 2024).

Figure 11. Increasing accessibility in Estonia has allowed several counties outside of the main urban centres to reach 70% coverage for breast cancer screening



Note: Counties highlighted in thick orange lines have reached 70% coverage, while those highlighted with thinner orange lines are less than 1 percentage point below.
Source: Adapted from NIHD (2024a).

To increase the effectiveness of screening, Estonia is developing an enhanced programme using personalised risk scores based on genetic data, available for a fifth of the Estonian population. The programme will target women aged 40 who consent to have their personal risk score for breast cancer calculated based on genetic information. Women determined to be at higher risk will be invited for screening once every 2 years from age 40, while the rest will be included in the usual screening programme from age 50.

Estonia aims to eliminate cervical cancer by 2040, adopting human papillomavirus self-sampling to increase coverage

The cervical cancer screening programme invites women aged 30-65 for screening every five years – having changed from a pap smear to HPV testing in 2021 (see Figure 10). In 2023, the screening rate reached 64% across the country, up from 45% in 2020 and 30% in 2006 when the programme started. This major improvement masks differences within the country, as rates range from 71% in Saare to 49% in Ida-Viru County. It should be noted, however, that following several targeted interventions, the rate in Ida-Viru County has increased by more than 10 percentage points since 2021 (NIHD, 2024a).

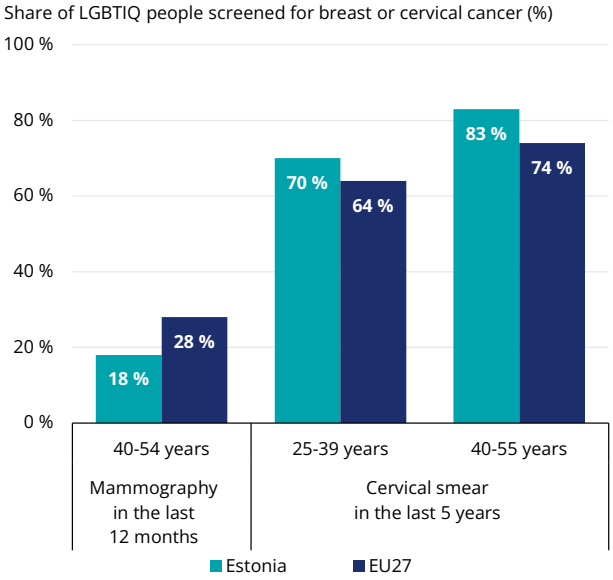
To increase coverage, home-based HPV sampling was piloted in 2022 and adopted in the second half of 2023 for women who had not yet had a test, with key time-saving and privacy benefits for users. In 2023, more than 10% of participants opted for home sampling, including importantly 14% in Ida-Viru County. In 2023, an additional 89 pharmacies in counties with lower coverage offered tests. An analysis conducted in 2022 showed that incidence of cervical cancer has been decreasing in Estonia since 2014, and that the significant decline in some age groups can be associated with the positive impact of the screening programme (Zimmermann et al., 2024).

To incorporate screening innovations, the University of Tartu is participating in a joint project to integrate scientific knowledge with data from population-based health registries, healthcare provision, surveys and the Estonian genome bank to develop, validate and evaluate an artificial intelligence technology that will model patient outcomes and perform risk stratification in cervical cancer screening.

LGBTIQ persons in Estonia participate less in breast cancer screening than their counterparts in the EU

According to the EU LGBTIQ Survey III, 18% of LGBTIQ cisgender females, trans women and intersex people aged 40-54 years in Estonia reported having had a mammogram in the previous 12 months, lower than the EU average of 28% (Figure 12). For cervical cancer screening, 70% of the relevant LGBTIQ population aged 25-39 in Estonia reported having had a smear test in the previous 5 years (higher than the 64% in the EU) and 83% of those aged 40-55 reported a smear test (higher than the 74% in the EU).

Figure 12. Among the LGBTIQ population, cervical cancer screening rates are higher in Estonia than in the EU



Note: LGBTIQ survey results refer to age groups and/or screening intervals that do not align with the population screening approach in EU countries, and should not be compared.
Source: The European Union Agency for Fundamental Rights (EU LGBTIQ Survey III).

Expansion of the colorectal cancer screening programme is challenged by availability of diagnostic testing

The colorectal cancer screening programme was established in 2016, and targets the population aged 60-68, who are invited to screening in primary care with a faecal immunochemical test every two years. Those who have undergone a colonoscopy in previous screening or who have been diagnosed with colon cancer earlier in life are excluded from the programme (OECD, 2024a). In 2023, colorectal screening coverage was 60% (55% among men and 65% among women) – up from 49% in 2021. Coverage ranged from 51% in Ida-Viru County to 74% in Võru county (NIHD, 2024a).

A key shortcoming of the programme is the reduced age range of the target group, which includes only a part of the 50-74 age group recommended for colorectal cancer screening programmes by the updated Council Recommendation on Cancer Screening of 2022. Despite discussions in the Cancer Screening Steering Group about increasing it, there are concerns about Estonia's ability to meet the requirement that follow-up in a timely manner with a endoscopy or radiology should be available to all who test positive.

Further screening programmes are under development for lung and prostate cancer

Following a feasibility study in 2021, the pilot lung cancer screening programme was scaled up in 2022 and 2023 to include the majority of practices in Tartu County. Family doctors and family nurses in Tartu County ask people aged 55-74 questions about smoking and family history of lung cancer, referring high-risk patients to a low-dose computed tomography (CT) scan to identify possible lung cancer. Systematic enrolment of participants through primary care resulted in high uptake of 87% among eligible individuals, showing the potential effectiveness of the approach (OECD, 2024a). In 2024, the programme continued in Tartu County, with discussions of expansion to Ida-Viru County and aims to begin a national population-based screening programme by 2027, financed through the EHIF.

A feasibility study is under way on prostate cancer screening. From April 2024, the NIHD is sending an invitation to more than 13 000 men aged 50-69 in Tallinn and Tartu, who have not had a prostate-specific antigen (PSA) analysis in the last 12 months and who have never had prostate cancer. Men with a high PSA level will be referred to a urologist, who will conduct an interview, assess risks and direct those with a high risk score to a magnetic resonance imaging (MRI) test. The programme marks an important development, as prostate cancer is the most commonly diagnosed cancer among Estonian men, and Estonia ranks third among EU countries in prostate cancer mortality.

5. Cancer care performance

5.1 Accessibility

Long waiting times are a key issue in the Estonian healthcare system, and systematic monitoring of targets is planned under the Cancer Control Plan

Estonia ranked highest in the EU in 2023 for the proportion of the population reporting unmet needs for medical care, at 13% compared to the 2% average across the EU, although the Estonian percentage has come down in recent years. People living in urban areas systematically reported higher unmet needs for specialist care than those in rural areas. While cost and travel distance play a minor role, more than 90% of those reporting unmet needs cite waiting times as the main reason (NAO, 2022).

Although waiting time targets for cancer care were set in 2011, with a goal of curative radiation treatment starting within 28 days of a cancer diagnosis, no systematic analysis of waiting times has yet been undertaken. The Cancer Control Plan 2021-30 defines waiting time limits for different parts of the treatment process, following the patient from primary and secondary care through to the cancer centre and the start of treatment (MoSA & NIHD, 2021). However, due to gaps in data infrastructure, average waiting times cannot be calculated, although a revision of health information infrastructure is under way to facilitate this.

Estonia is looking at digital solutions as an avenue to speed up diagnosis and treatment decisions. This includes use of e-consultations between family doctors and specialists on diagnosis or online visits for the patient, which constituted more than 40% of doctors' and nurses' workload in 2021 (NIHD, 2023a). Additionally, a national e-booking service for patients would help the government track which health services have longer waiting lists and analyse the underlying causes.

Despite low financial barriers in cancer treatment, gaps in insurance coverage among working-age people may result in delays in diagnosis

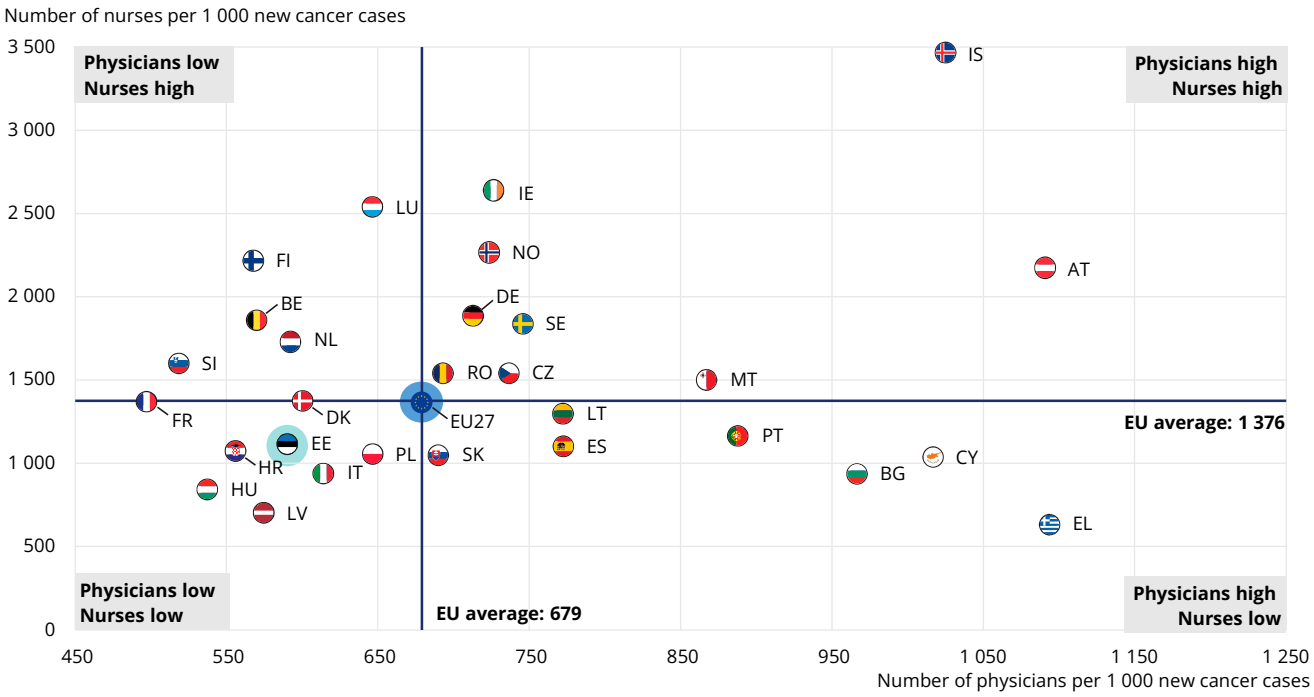
Financial constraints do not impose important barriers in access to cancer care in Estonia. Copayments apply but are kept low for both treatment and pharmaceuticals. For drugs to treat severe, life-threatening or pain-inducing diseases such as cancer, patients pay a fixed copayment of EUR 2.5, instead of one proportional to the price of the drug. Additional reimbursements are also available for annual cumulative out-of-pocket payments above EUR 100. Calculation and administration of these copayments are automatic, using the health system's extensive digital infrastructure, and happen at the time of purchase. Estonia's social insurance is tied to employment status (but includes children and pensioners). This left 5% of Estonians without coverage in 2022 (NIHD, 2023a). Although patients are covered through disability benefits once they receive a cancer diagnosis, the lack of coverage can lead to delays in visits to the doctor if there are symptoms of concern.

Estonia has increased admissions to medical training to address major concerns about workforce shortages

Shortages of healthcare staff have been consistently highlighted as an issue in the Estonian healthcare system. The number of physicians per 100 000 population in Estonia was 347 in 2021, which is 17% below the EU average. Scaled to the incidence of cancer (Figure 13), Estonia's density of physicians per 1 000 new cases is 13% lower than the EU average. Additionally, the physician workforce is ageing, with acute shortages in family medicine and psychiatry – especially outside larger cities – which may lead to gaps in care integration and availability of support for cancer patients and survivors.

In 2023, there were 56 oncologists in the country – a rate of 4 per 100 000 inhabitants, although the number of full-time equivalent workers (FTEs) was lower. There were 15 radiologists per 100 000 inhabitants, a number that has not changed substantially compared to 2013, despite increased demand. Shortages of radiologists have also been highlighted as a barrier to expanding the lung cancer screening programme (see Section 4), particularly as innovative solutions such as the use of AI in analyses are considered complementary, but cannot replace professionals (Alloja et al., 2023).

Figure 13. Estonia has fewer nurses and physicians relative to new cancer cases than average in the EU



Notes: The data on nurses include all categories of nurses (not only those meeting the EU Directive on the Recognition of Professional Qualifications). Data refer to practising nurses except in Portugal and the Slovak Republic, where they refer to professionally active nurses. In Greece, the number of nurses is underestimated as it only includes those working in hospitals. In Portugal and Greece, data refer to all doctors licensed to practise, resulting in a large overestimation of the number of practising doctors. The EU average is unweighted.
Source: OECD Health Statistics 2024. Data refer to 2022 or latest available year.

The number of nurses in Estonia in 2022 was 658 per 100 000 population – 22% lower than the EU average. This equates to 1 121 nurses per 1 000 cancer cases – 19% below the EU average. The density of nurses has increased since 2013 by nearly 100 nurses per 100 000 population. In 2023, the total number of nurses working in oncology clinics was 177 (12.9 per 100 000 population) (NIHD, 2024a).

To address shortages, Estonia increased the minimum number of nurse training spots across the country by a sixth to 700 in 2023, although this will take years to translate into a larger workforce (NIHD, 2023a). Estonia has also used some task-shifting to expand the role of nurses, as family nurses are often the first point of contact in primary care, and advanced practice nursing (a master's degree-level qualification) has recently seen the introduction of explicit reimbursement across all care levels. However, oncology-specific training for nurses primarily occurs in the workplace, constituting a possible gap in the training pathway compared to some other European countries. The Estonian Oncology Nurses Union, a sub-organisation of the Estonian Nursing Union, sets targets and content for training programmes and provides suggestions to improve the well-being of nurses and the safety of patients and their carers (MoSA & NIHD, 2021).

Achieving earlier diagnoses requires greater attention to health literacy and availability of diagnostic testing

In 2021, more than half of incident cancers in Estonia were diagnosed in people aged 70 and over, with nearly a quarter of breast cancers diagnosed in people aged 75 and over, emphasising the importance of early diagnosis efforts beyond the age-limited screening programmes (NIHD, 2024a). The Cancer Control Plan 2021-30 intends to increase population awareness of cancer symptoms, thereby increasing timely visits to family doctors – who act as gatekeepers to the health system – and consecutively timely access to diagnosis and staging, developing standard patient pathways from first contact to start of treatment (MoSA & NIHD, 2021).

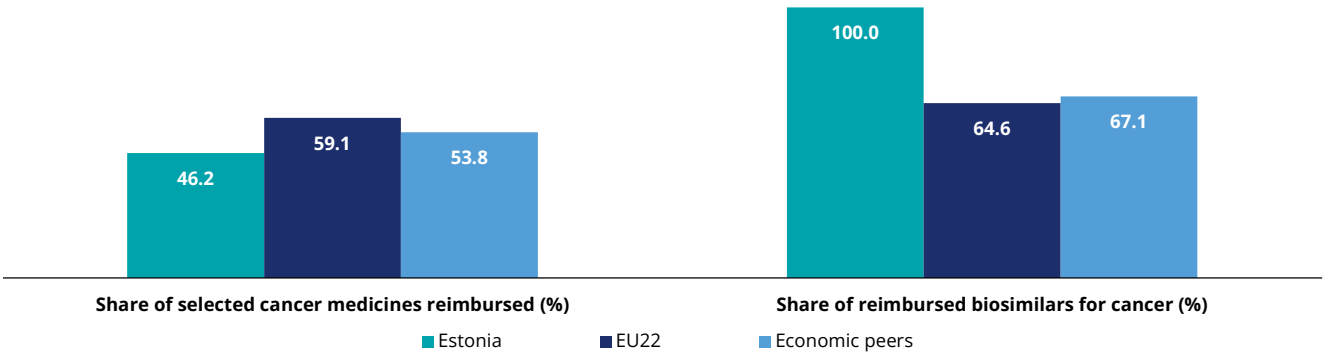
In 2021, around half of cancer patients were diagnosed with a localised tumour prior to spread to adjacent tissues; however, a fifth of men and more than a sixth of women had distant metastasis at the time of diagnosis. Of particular concern was pancreatic cancer, where around half of patients had metastases. The proportion of cases with distant metastasis was above 40% for women with gallbladder, oesophagus and liver cancer and for men with lung cancer (Zimmermann et al., 2024).

In 2022, Estonia had a lower density of imaging equipment per capita than the EU average, and lower numbers of examinations per 100 000 population with CT (by 3%), MRI (by 33%) and positron emission tomography (PET) (by 58%). To enhance access to diagnosis, particularly in areas further from major hospitals, the Estonian Cancer Association is purchasing a mobile CT scanner, using funds from charitable organisations (Heinsalu, 2024). This will also support expansion of the lung cancer screening programme, ensuring access to diagnostic testing – particularly in rural areas (Section 4).

Long coverage times can hinder access to new medicines

Access to new medicines through national reimbursement has been cited as an issue in Estonia, as many new treatments available elsewhere in Europe become reimbursable in Estonia only much later. This is attributed to the longer timeframes for applications and price negotiations within a small country. For new medicines, the time from European Medicines Agency (EMA) approval to reimbursement was 559 days in Estonia – more than the EU average of 516 days. The share of a sample of newer cancer medicines with high clinical benefit that are publicly reimbursed or covered is 46%, which is lower than the averages across the EU (59%) and among Estonia's economic peers (54%) (Figure 14). In some cases, Estonia uses a named-patient reimbursement system for unlicensed medicines and for off-label/not reimbursed indications as a way to provide early access. Additionally, for around half of newer medicines, Estonia applies more restrictions than are found in the EMA approval on the eligibility of patients to receive reimbursements for the drug (OECD, 2024a).

Figure 14. Although evidence shows Estonia ensures access to biosimilars, reimbursement of newer drugs lags behind the EU average as well as that of Estonia's economic peers



Notes: The analysis includes a sample of 13 indications of 10 new cancer medicines for breast and lung cancer with a high clinical benefit and 19 biosimilars of three cancer medicines (bevacizumab, rituximab, trastuzumab), with active marketing authorisation by the European Medicines Agency as of 26 March 2023. The data represent the share of the indications or biosimilars that were on the public reimbursement list on 1 April 2023. Economic peers are defined as tercile clusters based on 2022 GDP per capita in purchasing power standard terms. Economic peers for EE are BG, EL, HR, HU, LV, PL and PT. The EU average is unweighted.
Source: Hofmarcher, Berchet and Dedet (2024), "Access to oncology medicines in EU and OECD countries", OECD Health Working Papers, No. 170, OECD Publishing, Paris, https://doi.org/10.1787/c263c014-en.

By contrast, Estonia reimbursed all drugs from a selection of 19 biosimilars of three cancer medicines with active marketing authorisation by the EMA, compared to 67% on average among the country's economic peers. This is because the biosimilars are not included in reimbursement as a brand, but rather on the basis of active substances, with choice of brand depending on tender results.

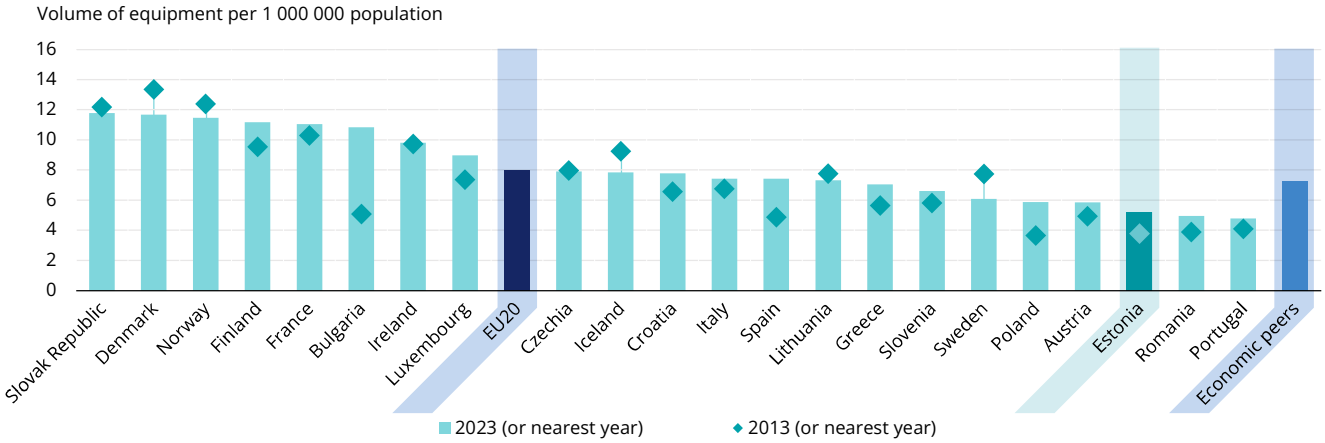
Access to clinical trials in Estonia is lower on average than other countries, which may be related to the costs of the paperwork, ethical evaluations and local language translations being higher in small countries. Efforts to improve the situation include establishment of a national cancer centre, which will enhance research and development activities, facilitate collaboration among all stakeholders and act as a focal point for international clinical and research trials, with the aim of obtaining EU Comprehensive Cancer Centre accreditation (MoSA, 2023).

Estonia is working to estimate needs for optimal use of radiation therapy to ensure that enough equipment is available

In 2023, there were seven radiotherapy machines in Estonia, which translates to a per capita supply 35% below the EU average (Figure 15). By 2024, Estonia had purchased additional machines, bringing the number closer to the EU average. All machines are relatively new, with only two older than 15 years. Geographical accessibility can be a concern, as radiation is only provided in cancer centres in Tallinn and Tartu, and often requires a long stay to allow the patient to receive small doses daily for several days.

A study of women diagnosed with breast cancer revealed that following primary surgery, receipt of radiotherapy within 12 months after surgery was higher among women with higher education levels and those who were married but was not dependent on the geographical residence. The study also revealed a large increase in use of radiation therapy over time – from 39% among those diagnosed in 2007-09 to 58% in 2016-18, in line with increases in available equipment (Shahrabi Farahani, Paapsi & Innos, 2021). An analysis is under way to assess current utilisation of radiotherapy for different cancer sites, considering international recommendations for optimal use. This will estimate the need for radiation treatment up to 2040, and current and future needs for equipment and workforce.

Figure 15. Volume of radiation therapy equipment in Estonia is lower than the EU average



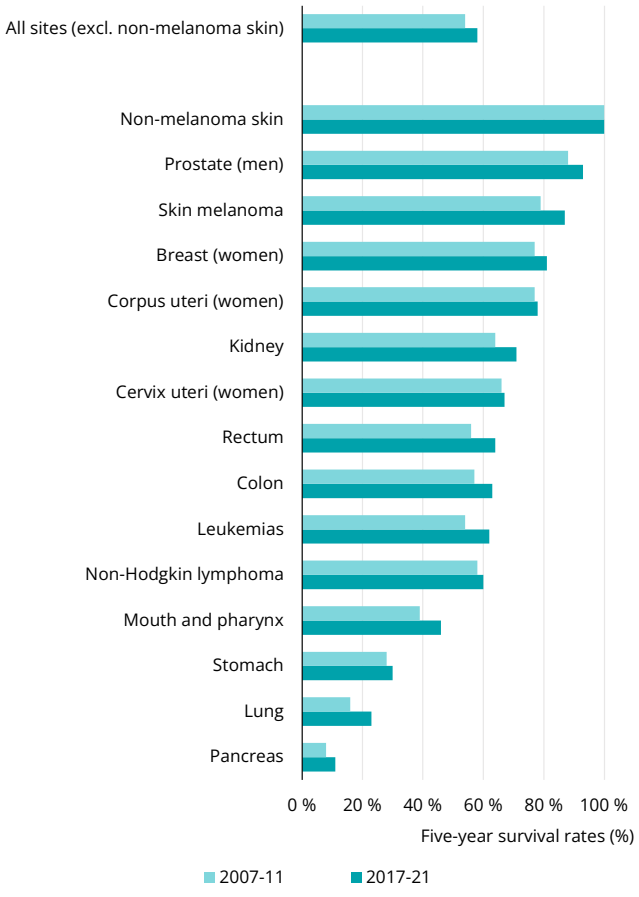
Notes: The vast majority of radiotherapy equipment in EU countries is found in hospitals. Data for Portugal and France includes equipment in hospitals only while data for other countries refer to all equipment. Economic peers are defined as tercile clusters based on 2022 GDP per capita in purchasing power standard terms. Economic peers for EE are BG, EL, HR, PL, PT, RO, and SK. The EU average is unweighted.
Source: OECD Health Statistics 2024.

5.2 Quality

Survival from several cancer types has increased in Estonia

Cancer survival is one of the key performance metrics in Estonia's Cancer Control Plan 2021-30, as it allows a comprehensive assessment of cancer control measures, accounting for both early diagnosis and efficacy of cancer treatment. In 2017-21, for all cancer cases (excluding non-melanoma skin cancer) diagnosed in Estonia the one-year relative survival estimate was 74%, the five-year estimate was 58% and the ten-year estimate was 53%. Compared to cancers diagnosed in 2007-11, five-year survival had increased the most for skin melanoma, rectal cancer and leukaemia (by 8 percentage points) (Figure 16). Estonia is aiming to reach survival estimates close to those seen in the Nordic countries – which has already been achieved for some sites, though gaps remain for others, including non-Hodgkin's lymphoma and head and neck cancers. Although for most sites, survival estimates were higher for women than men, differences have decreased for some cancer sites (pancreas, stomach, colon and kidney) – an objective of the Cancer Control Plan 2021-30 (Zimmermann et al., 2024).

Figure 16. Five-year survival rates increased by 4 percentage points for cancers diagnosed in 2017-21 compared to those diagnosed in 2007-11



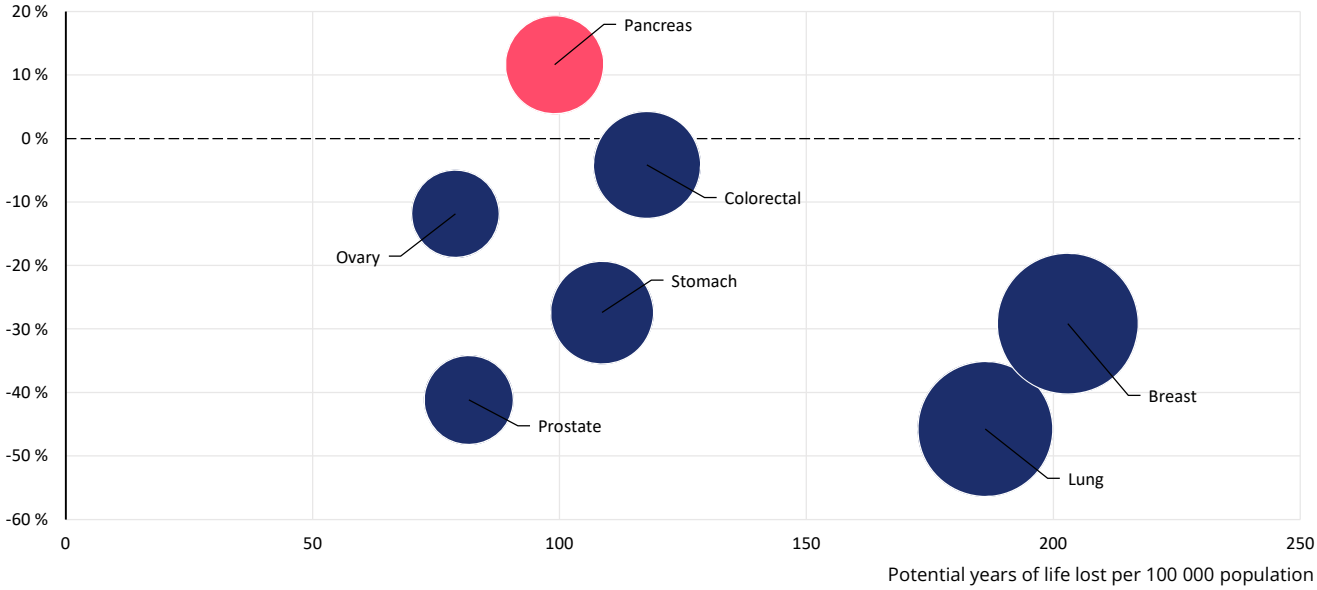
Source: Zimmermann (2024)

Most potential years of life in Estonia were lost due to lung cancer

In addition to survival data, potential years of life lost (PYLL) is a complementary measure of the impact of different cancers on society, because it puts a higher weight on cancer deaths among younger individuals. Examining the change in PYLL over time across various cancer sites can point to improvements in cancer care systems via reductions in premature mortality. Due to cancers, Estonians lost 1 283 potential life years per 100 000 population in 2022 – 5% below the EU average and 28% less than in 2012. The rate was particularly high among men (58% higher than among women). In 2022, the largest contributor per 100 000 population was lung cancer, at 186 years, though this had decreased by 46% since 2012 (Figure 17). In women, breast cancer was responsible for 203 years of life lost per 100 000 women. Though most cancers showed a decreasing trend, years lost to pancreatic cancer increased by 12% in the same period.

Figure 17. The rate of potential years of life lost is decreasing for most major cancer sites

Percentage change in potential years of life lost 2012-22 (or nearest available year) (%)



Notes: The rate of PYLL from breast, cevical and ovarian cancer is calculated in women only, while the rate of PYLL from prostate cancer refers to men. Pink bubbles signal an increase in the percentage change in PYLL during 2012-22 (or latest available year); blue bubbles signal a decrease. The size of the bubbles is proportional to the PYLL rates in 2022.
Source: OECD Health Statistics 2024.

Although person-centredness is seen as an area of priority, scale-up of efforts is needed

Estonia is shifting to a personalised, value-based and patient-centred approach to cancer care, which stipulates that patient-reported outcome measures (PROMs) should be a standard part of assessing treatment and its tolerability. Estonia has had several PROMs pilot projects in cancer centres, and it is considered feasible to implement these in daily practice for breast and lung cancer patients. Despite this, PROMs and patient-reported experience measures (PREMs) are not collected in a centralised manner at the national level, and there is no overall model of surveillance for PROMs – a gap that the Cancer Control Plan 2021-30 aims to address.

Several person-centredness initiatives have been introduced, such as the KAIKO e-platform that aims to support the patient at home and facilitates continuous communication and reporting of symptoms between the patient and healthcare provider. To improve integration along the patient pathway, cancer centres have established nurse co-ordinator roles, ensuring that patients have one contact person they can call throughout care. Further development of patient-centredness is planned by improving patient pathways from suspicion of cancer to the post-treatment period, including measurement of patient satisfaction at different stages. Some progress has been made, as a specific pathway for lung cancer patients has been developed, and patient organisations are involved in governing bodies – for example, in development of clinical guidelines. Seeing opportunities to leverage its digitalised health system and the availability of genetic information to make better care decisions, Estonia has embarked on efforts to personalise aspects of care for higher efficacy in individual patients (Box 2).

Box 2. Estonia's digitalised health information system allows for the development of personalised medicine to better target cancer screening and treatment

The Estonian e-health strategy has person-centredness and personalised medicine as one of its five core focus areas. Estonia's single health information system contains all health data, including genomic data for 20% of the adult population, providing opportunities for better prevention and treatment decisions. With support from the European Fund for Regional Development, the NIHD led a project from 2019 to 2023 to develop preparedness for implementation of personalised medicine. Key activities included development of an information technology (IT) system, a legal framework, training for healthcare workers and public awareness. The first services planned for development include prevention and early detection of breast cancer and personalised medication recommendations (NIHD, 2024d).

To improve quality of cancer care, Estonia is reviewing organisation of care

Following comprehensive action and plans for centralisation, Estonia restructured its cancer care network, with cancer care for adults mainly delivered in three cancer centres in the north and south of the country. Smaller hospitals mainly provide systemic care under the oversight of the cancer centres. Further centralisation is planned, with discussions ongoing regarding dividing surgeries by cancer site between the hospitals to ensure availability of sufficient expertise.

The average length of stay in a hospital for cancer patients in Estonia was 7.4 days in 2021, which is higher than the average of 6.9 days across the EU. As longer hospitalisations are associated with higher risks, several European countries with scope for comprehensive follow-up of post-surgical patients have moved towards more use of day cancer surgery, where safe to do so. However, in 2022, no total mastectomies were performed as day cases in Estonia, and only 13% of mammary gland excisions were.

Estonia is improving monitoring of cancer care via improved digital health infrastructure

In recent years, Estonia has conducted systematic performance monitoring and audits for cancer care. The EHIF has an advisory board on quality indicators to develop outcomes-oriented healthcare, but there are several gaps in monitoring and information systems. The Cancer Control Plan 2021-30 acknowledges a gap in systematic monitoring of adherence to guidelines. Leveraging its digitalised health information system, evidence-based support is available to Estonian doctors in decision making and tracking a patient's health information, including diagnoses, medications, analyses and procedures. In treatment decisions, multidisciplinary tumour boards are a normal part of cancer care in Estonia and are reimbursed by the EHIF, although practice varies due to a lack of specific guidelines.

5.3 Costs and value for money

The burden of cancer on health expenditure is expected to be lower in Estonia than in the EU

The Estonian health system is largely funded by the EHIF, which organises purchasing of healthcare. It operates as a semi-autonomous public organisation, pooling most funding through a payroll tax, although state transfers play an increasing role. Estonia's health spending as proportion of GDP is among the lowest in the EU, at 7% in 2022. In 2022, the EHIF reimbursed treatment of cancer for 51 000 people, providing more than EUR 171 million for surgery, treatment and medications (MoSA, 2023). Based on the EHIF's 2023 financial report, 15% of specialist healthcare spending was on cancer – up from 14% in 2022 (EHIF, 2023). In 2023, very expensive cancer treatments (defined as those costing above EUR 104 000) made up 12% of all very expensive treatment costs.

According to OECD SPHeP modelling work, between 2023 and 2050, total health expenditure is estimated to be 3.6% higher in Estonia due to the burden of cancer. This equates to an average of EUR (PPP) 37 per person per year, well below the EU19 average (EUR 242). However, it should be noted that Estonia's current funding model is seen as unsustainable in the future, and key capital investments in the Estonian healthcare system have relied on EU structural funds.

Given the increasing prevalence of cancer incidence and survival, more people are expected to need support services for longer, resulting in cost increases. Overall, the per capita health expenditure on cancer care is expected to grow by 61% in Estonia between 2023 and 2050, compared to 59% in the EU27.

Value for money initiatives have been pursued through funding for screening and medicines

To date, Estonia has made less use of measures to contain costs for cancer treatment, as availability and access have consistently been highlighted as

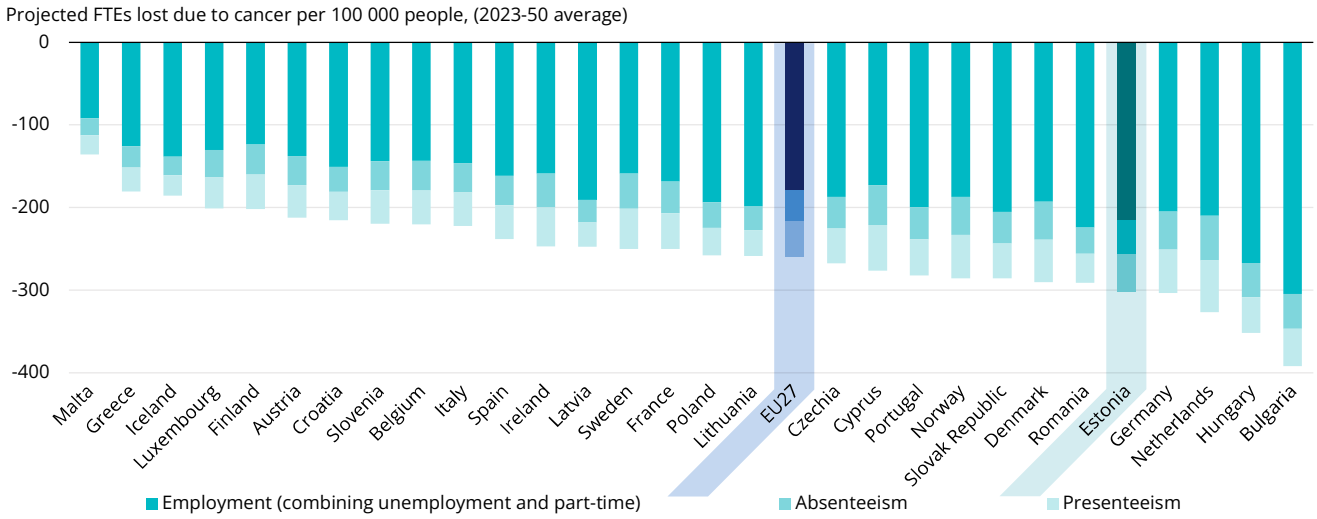
areas for improvement. As a way to contain costs through earlier diagnoses, when treatment is less expensive, additional funding was allocated to screening programmes in 2023: widening age ranges, testing innovative solutions and developing new programmes (Section 4). Compared to 2022, the budget allocated to screening programmes was 5% higher for breast cancer, 13% higher for cervical cancer and 19% higher for colorectal cancer in 2023 (EHIF, 2023).

Due to increasing prices of medicines, their impact on the budget has increased. To contain the cost of newer cancer medicines, around half are reimbursed with restrictions – available for fewer indications than approved by the EMA (OECD, 2024a). Reimbursement of medications is based on active ingredients provides flexibility for hospitals to make decisions affecting budgets, showing an emphasis on budget sustainability. In reimbursement decisions, the EHIF follows general principles – for example, a generic drug should be at least 30% cheaper than the original drug, and a biosimilar at least 15% cheaper than the original medicine included in the national formulary list of medicines.

Cancer impacts the Estonian labour market and economy widely

In addition to the direct costs on individual health, such as the outcomes of morbidity and mortality, and the mental and psychological toll cancer takes on the patient and those close to them, cancer poses substantial indirect burdens on society at large. These arise as increases in employment losses and absenteeism and presenteeism,[6] resulting in an impact on GDP and income loss, which has further implications for people's well-being and the amount of money available to invest in health services. According to OECD SPHeP modelling work, losses in the Estonian labour force are estimated to be among the highest in the EU (Figure 18). Between 2023 and 2050 on average, there is expected to be a loss of 213 full-time equivalent workers (FTEs) per 100 000 people in Estonia due to the need to reduce employment because of cancer, which is more than the EU average of 178 FTEs per 100 000. It is also expected to result in a loss of 89 FTEs per 100 000 people due to both absenteeism and presenteeism, with an impact in Estonia higher than the EU average of 81 FTEs per 100 000.

Figure 18. Cancer will have a large impact on the Estonian labour force between 2023-50, resulting in an average annual loss of more than 300 full-time equivalent workers per 100 000 population



Note: The EU average is unweighted.
Source: OECD (2024b), Tackling the Impact of Cancer on Health, the Economy and Society, https://doi.org/10.1787/85e7c3ba-en.

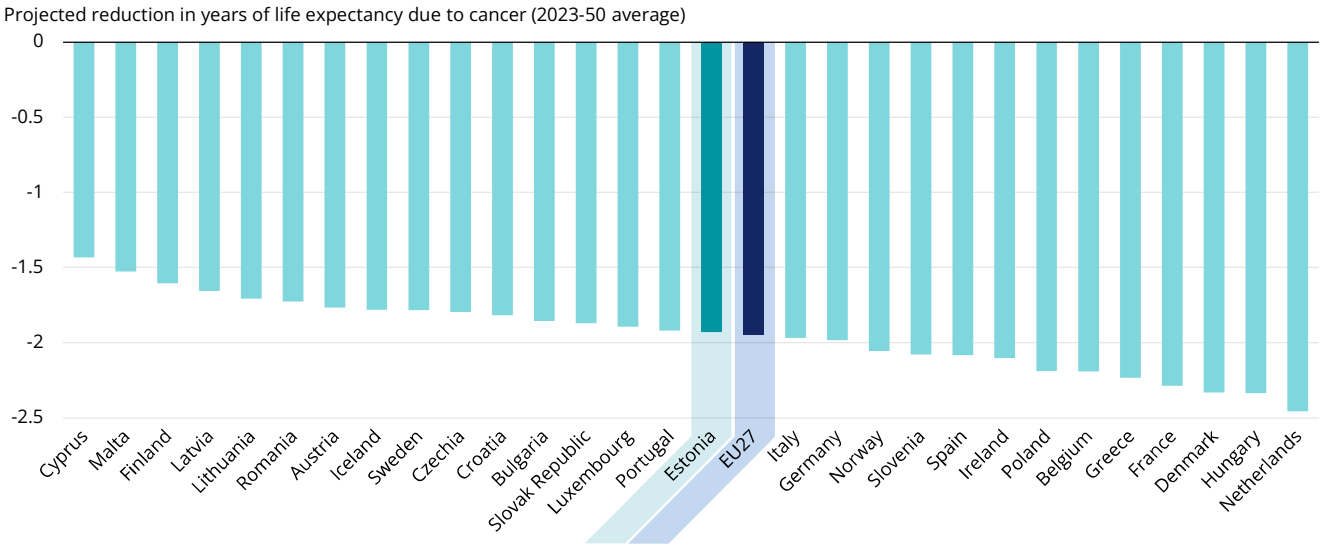
6 *Presenteeism refers to lost productivity that occurs when employees are not fully functioning in the workplace because of an illness, injury or other condition.*

5.4 Well-being and quality of life

More than 5% of Estonians had a history of cancer in 2020

According to OECD SPHeP modelling work, between 2023 and 2050, cancer is estimated to reduce life expectancy in Estonia by 1.9 years compared to a scenario without cancer – similar to the EU average of 1.9 years (Figure 19). In addition to this, cancer is associated with substantial mental and physical health concerns, which affect both the patient and those close to them. Based on national data, more than 67 000 people (5% of the population) in Estonia in 2020 had received a cancer diagnosis in their life, which underscores the importance of availability of support services to enhance quality of life and help people cope with the effects of cancer.

Figure 19. The impact of cancer on average population life expectancy over 2023-50 in Estonia is close to the EU average



Note: The EU average is unweighted.
Source: OECD (2024b), Tackling the Impact of Cancer on Health, the Economy and Society, https://doi.org/10.1787/85e7c3ba-en.

Support and rehabilitation services suffer from a lack of structure

Two guidelines for palliative care have been published, including treatment of symptoms, recommendations for management of specific cases, and organisation of care as an interdisciplinary pathway involving mental health services and providers with specialised training. This is particularly important, as it is anticipated that Estonia will have an additional age-standardised rate of 23 cases of depression per 100 000 population annually between 2023 and 2050 because of cancer, which is substantially higher than the 17 per 100 000 across the EU. Meanwhile, availability of psychological support has been challenged by workforce shortages, as although the number of psychologists and psychotherapists increased from 13 per 100 000 population in 2013 to 27 per 100 000 in 2023, demand has grown exponentially across care settings and in the community (NIHD, 2024a).

Estonia does not have systematic organisation of referrals to oncological rehabilitation to improve quality of life of cancer patients and survivors.

Despite progress in several areas, activities concerning fertility preservation for cancer patients and the right to be forgotten for survivors are lacking, and Estonia does not have an organised network for cancer survivorship clinics. For post-treatment care, patients rely on the primary care system.

Accessibility of palliative care is uneven between regions

Palliative care in Estonia is included in the services reimbursed by the EHIF, including inpatient and outpatient palliative care and end-of-life care. Out-of-pocket expenses apply for outpatient services and nursing homes, and users pay part of the cost for treatment such as opioids and other pain management. Patients also contribute to bed-day costs in nursing homes and hospices.

In 2019, Estonia had more palliative care services than the EU average, provided by hospitals, professional associations and patient associations, with 48 providers offering home-based nursing services (present in every county) as of 2020. However, an analysis found that services are unevenly distributed, and access varies

significantly between regions – particularly for mental health services. Remote areas face difficulties accessing comprehensive services due to a lack of compensation, including for travel costs.

Timely access is further hindered by a lack of awareness among healthcare professionals, the absence of a co-ordinated palliative care network and funding shortfalls. As such, access often depends on patient or caregiver awareness. There is need for better integration, teamwork and case management pathways to ensure that patients are not lost in the system (HAAP Consulting, 2023).

Estonia is developing a palliative care services model to better fit the needs of patients

The Cancer Control Plan 2021-30 aims to further enhance palliative care by training healthcare professionals, increasing awareness among patients and staff, and securing sufficient funding. Prioritising quality of life for cancer patients, the Plan includes developing a national palliative care services model. Estonia plans to join EU initiatives on health and palliative care, including paediatric palliative care. A report commissioned by the Ministry of Social Affairs (HAAP Consulting, 2023) will guide the redesign of the palliative care network to achieve better reach across regions, emphasising the role of primary care and increased support for informal carers. Home nursing is central to this strategy, aiming to reduce hospital stays by providing care at home. The Plan additionally aims to ensure that comprehensive, high-quality and timely oncological rehabilitation service is guaranteed to patients, and aims to standardise the terminology, coding and evaluation system of these services.

Palliative care training is provided to healthcare workers as part of medical education, while specialised supplementary training is recommended as part of palliative care guidelines but is not mandatory. Practical training opportunities are considered a weak point. As part of work on developing a palliative services training model, the plan is to expand training, make it mandatory, and develop a specialised training pathway for case co-ordinators.

Although the EHIF conducts quality audits of all its partners, and healthcare providers are legally required to conduct patient experience surveys, including palliative and end-of-life care, data on availability and quality of palliative care specifically for cancer patients in the country are lacking.

Much end-of-life care relies on informal carers in Estonia, although development of a professional network is planned

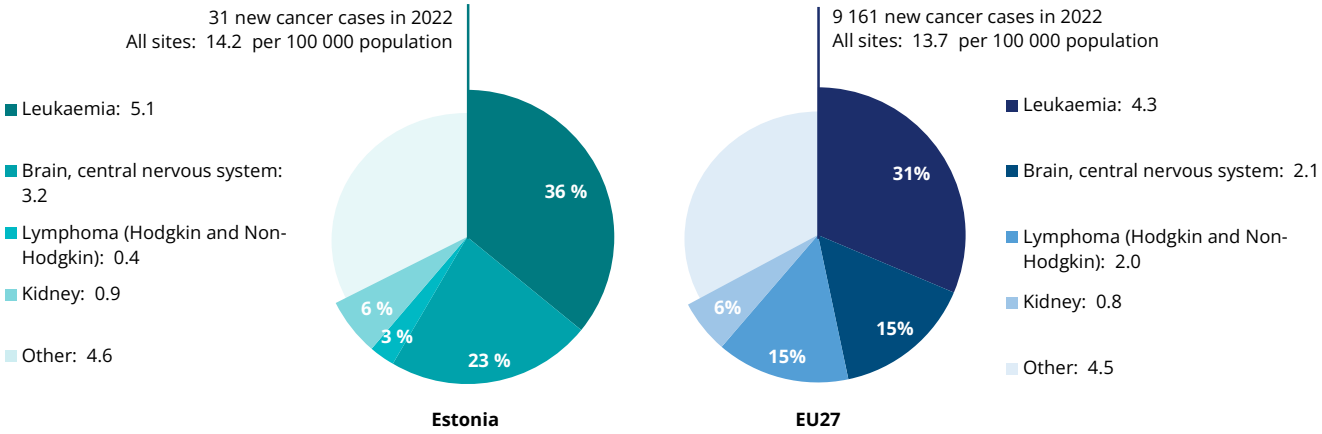
End-of-life care in Estonia is available at home and in hospitals, nursing homes and hospices. Patients can be referred by a GP or specialist, including via teleconsultation. However, much of the care burden remains on informal carers, who are only entitled receive an 80% pay benefit for up to seven days when caring for a family member. There is no system for unpaid leave, and flexible work arrangements are not supported. Financial support for informal carers is determined by municipalities, which decide eligibility and the type of support provided (Rocard & Llena-Nozal, 2022). Priorities outlined in the Cancer Control Plan 2021-30 include improving availability and accessibility of end-of-life care services, ensuring that healthcare workers are skilled in palliative care, developing psychological support at the end of life, and regulating the provision of information to patients and families about end-of-life care decisions.

6. Spotlight on paediatric cancer

According to ECIS, 31 cancer cases were estimated in children and adolescents in 2022. The incidence rate for ages 0-14 in 2022 was estimated at 14.2 cases per 100 000 people, similar to the 13.7 per 100 000 in the EU27 (Figure 20). The most commonly diagnosed cancer was estimated to be leukaemia at 5 per 100 000 people, followed by brain and central nervous system cancers, lymphomas and kidney cancer. Eurostat data shows that the mortality rate from paediatric cancer was 2.9 per 100 000 inhabitants – consistently one of the highest in the EU.

Figure 20. Cancer incidence among children in Estonia is slightly higher than the EU average

Age-standardised incidence rate per 100 000 population (aged 0-14), estimates, 2022



Notes: 2022 estimates are based on incidence trends from previous years, and may differ from observed rates in more recent years. "All sites" includes all cancer sites except non-melanoma skin cancer.
Source: European Cancer Information System (ECIS) for cancer incidence. From https://ecis.jrc.ec.europa.eu, accessed on 10 March 2024. © European Union, 2024.

In Estonia, two children's haematology-oncology centres diagnose and treat paediatric cancers (Tartu University Clinic and hospital and Tallinn Children's Hospital). The Estonian Cancer Control Plan 2021-30 points to insufficient awareness in medical professionals that the diagnosis and treatment of malignant tumours in patients aged 0-18 years is guided by the paediatric oncologist.

The majority of treatment modalities relevant for childhood cancer are available in Estonia. Proton radiation therapy and survivorship care are not available to childhood cancer patients in the country. To ensure access to proton therapy, Estonian centres draw from international collaboration. In addition, of the 436 clinical trials involving childhood cancer patients in Europe between 2010 and 2022, only 1% are available to people aged under 18 in Estonia – among the lowest shares in the EU. Of 68 paediatric medicines identified as essential, 59% were available in Estonia in 2018, which is lower than the average of 76% across the EU, but higher than the 49% in neighbouring Latvia and Lithuania (Vassal et al., 2021).

The Estonian Cancer Control Plan 2021-30 additionally identifies important gaps in the social support system for parents whose child has been diagnosed with cancer, including insufficient support for children's development during long-term hospitalisation and return to kindergarten or school, and a lack of out-of-hospital psychological care. Paediatric cancer is a priority in the Estonian Cancer Control Plan 2021-30, which aims to enhance availability of services, improve co-operation with international competence centres, and increase access to clinical trials for paediatric cancer patients.

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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
Czechia	CZ	Greece	EL	Lithuania	LT	Portugal	PT		

European Cancer Inequalities Registry

Country Cancer Profile 2025

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 Thematic Working 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 quality of life.

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