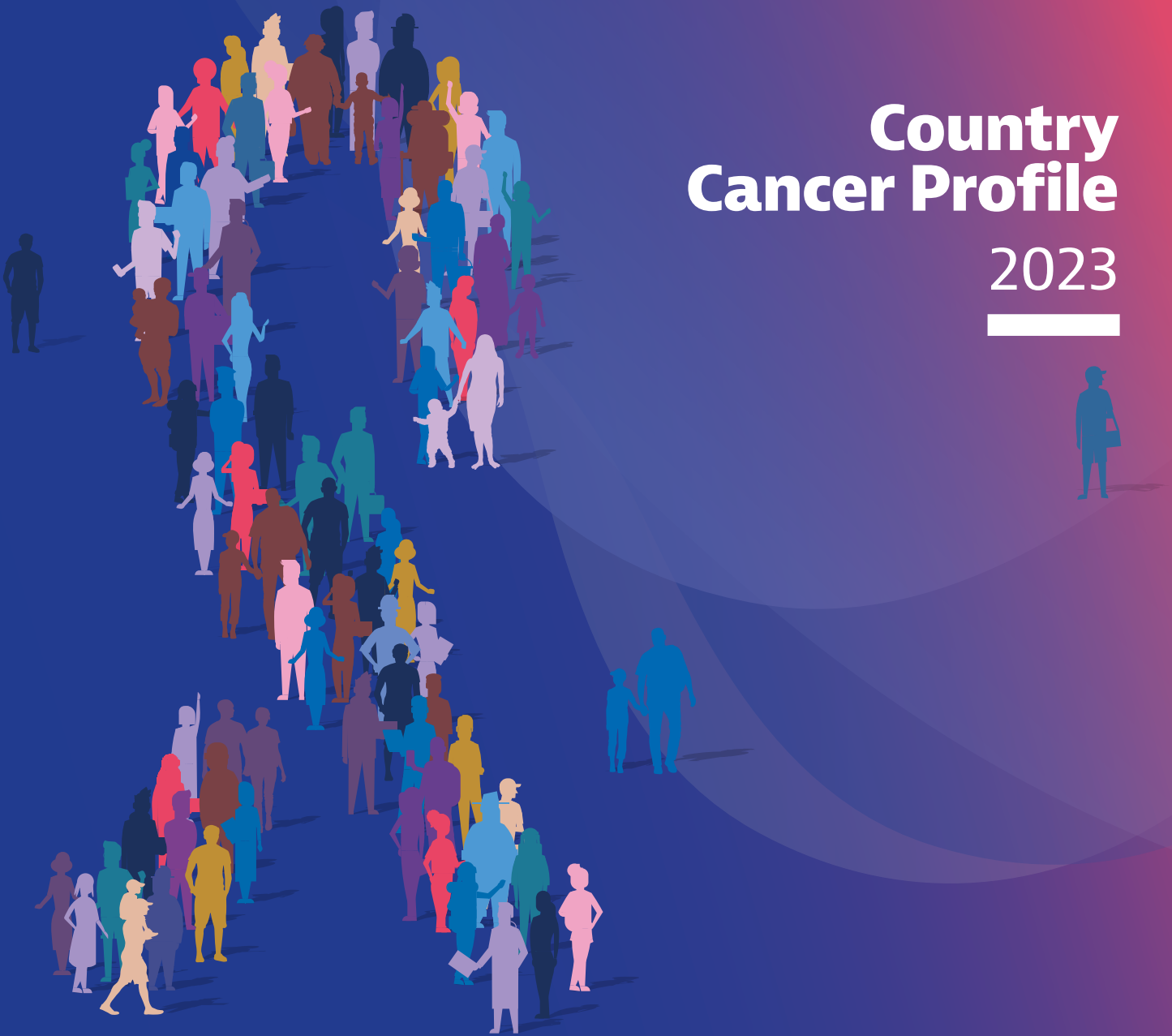


SWEDEN

Country Cancer Profile

2023



The Country Cancer Profile Series

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

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

Data and information sources

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

Additional data also come from the World Health Organization (WHO), the International Agency for Research on Cancer (IARC), the International Atomic Energy Agency (IAEA), the Institute for Health Metrics and Evaluation (IHME) and other national sources (independent of private or commercial interests). The calculated EU averages are weighted averages of the 27 Member States unless otherwise noted. These EU averages do not include Iceland and Norway. Purchasing Power Parity (PPP) is defined as the rate of currency conversion that equalises the purchasing power of different currencies by eliminating the differences in price levels between countries.

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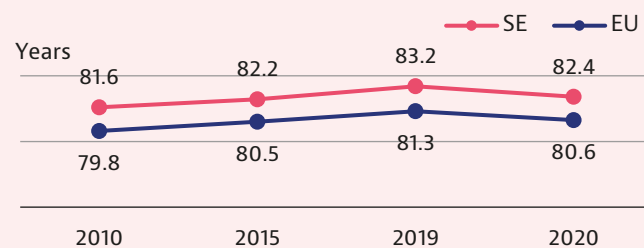
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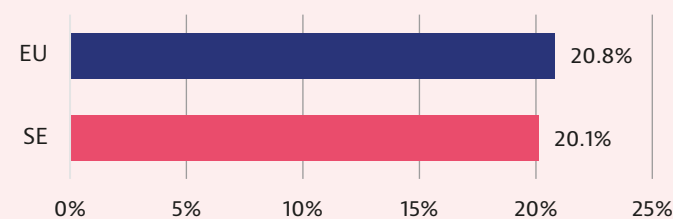
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Summary of the main characteristics of the health system

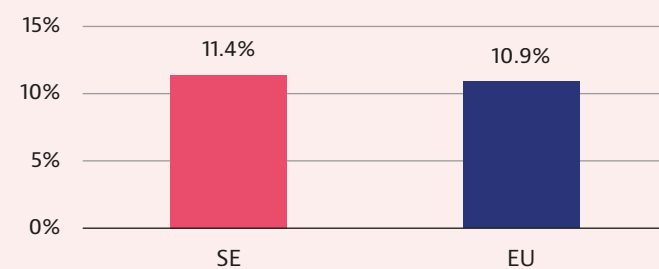
LIFE EXPECTANCY AT BIRTH (YEARS)



SHARE OF POPULATION AGED 65 AND OVER (2021)

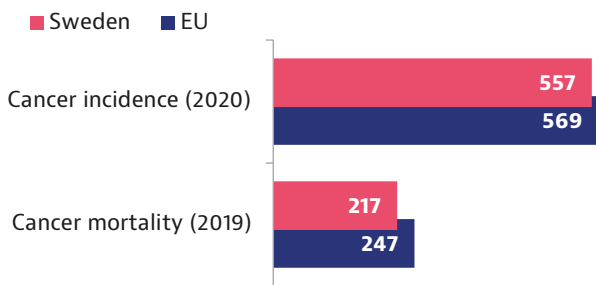


HEALTH EXPENDITURE AS A % OF GDP (2020)

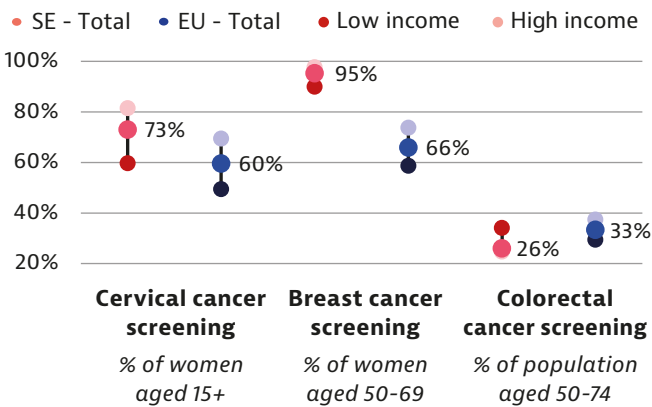
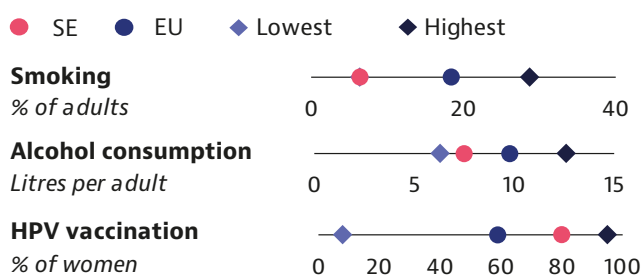


Source: Eurostat Database.

1. Highlights



Age-standardised rate per 100 000 population



Cancer in Sweden

While estimated cancer incidence in Sweden is slightly lower than the EU average, cancer mortality is among the lowest in the EU and is decreasing for the most common cancers. The National Cancer Strategy, launched in 2009, paved the way for national guidelines, improved quality assurance, cancer care pathways and further development of clinical quality registers.

Risk factors and prevention policies

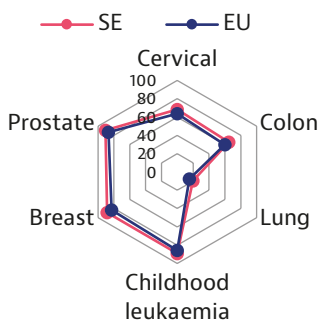
Prevalence of risk factors for cancer is generally low in Sweden, but some disparities between socioeconomic groups are concerning. While prevalence of smoking in Sweden is the lowest in the EU, the relative difference between those on higher and lower incomes is among the largest.

Early detection

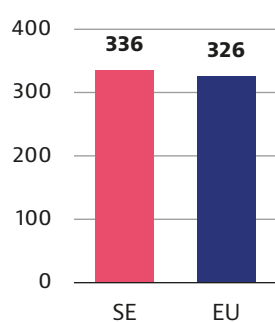
Sweden has three nationwide population-based outreach screening programmes that are tax financed and free of charge for the target populations. Breast and cervical cancer screening coverage rates are among the highest in the EU, but differences in participation by income and education levels persist.

Cancer care performance

All Swedish residents are covered for health services, and results are comparably good when measuring performance of cancer care, with low cancer mortality and high cancer survival rates. The quality of cancer care has continued to improve in recent decades following the launch of a National Cancer Strategy in 2009. The strategy included the establishment of regional cancer centres, multidisciplinary teams decision makings, regularly updated national clinical guidelines, further development of clinical quality registers and rapid access to new medicines. Cancer costs are slightly higher per capita than the EU average.



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



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

2. Cancer in Sweden

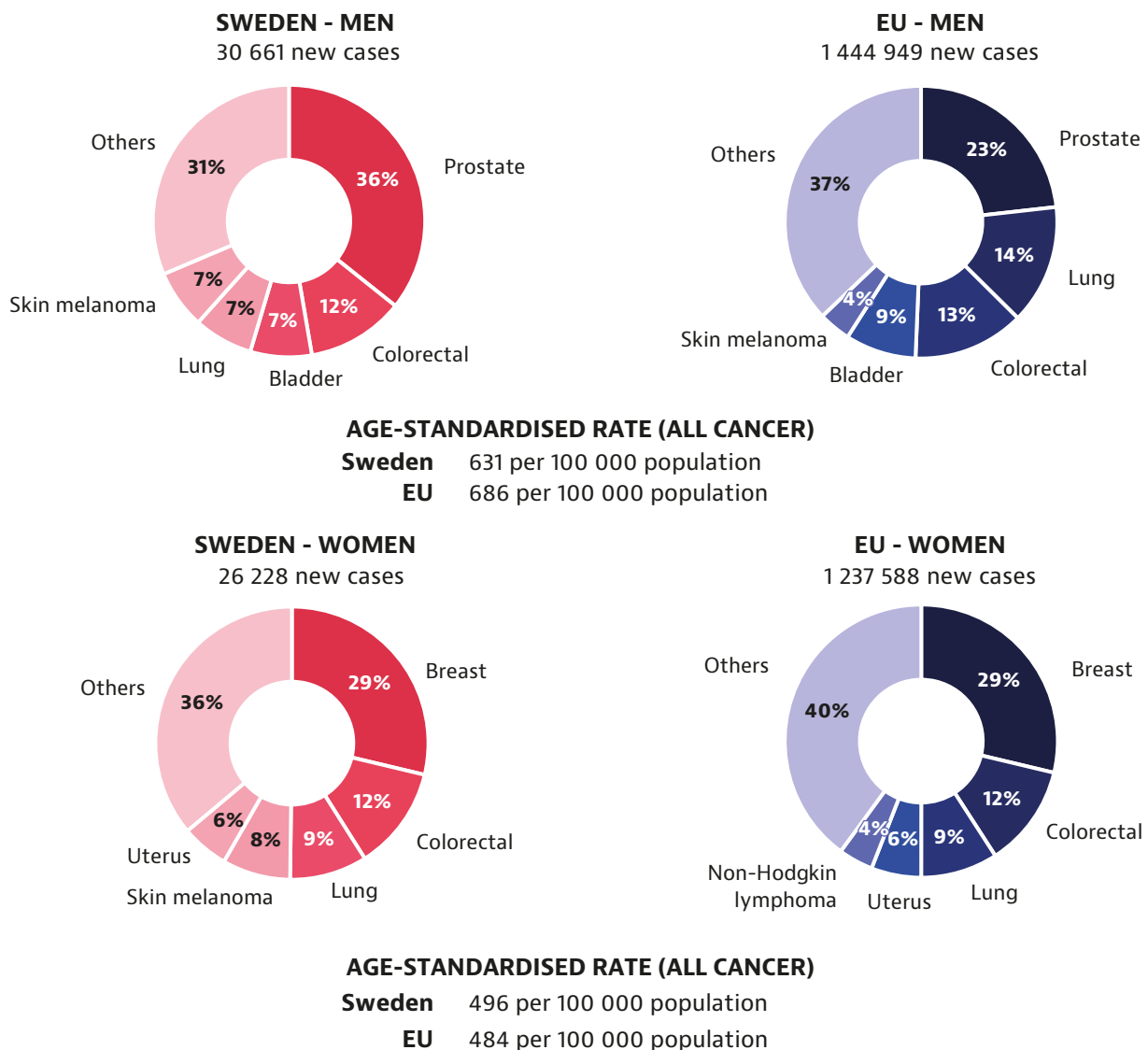
Cancer incidence is lower in Sweden than the EU average for men but slightly higher for women

Cancer incidence in Sweden has increased since the National Cancer Registry was founded in 1958, but cancer mortality has decreased since the 1970s. According to European Cancer Information System (ECIS) of the Joint Research Centre based on incidence trends from pre-pandemic years, cancer

incidence among Swedish men was expected to be 631 new cases per 100 000 population in 2020, which is low compared to the EU average of 686 per 100 000 population. Among women, cancer incidence was expected to be slightly higher than the EU average, at 496 new cases per 100 000 population compared to 484 per 100 000 across the EU (Figure 1).

Figure 1. Leading cancers in Sweden in 2020 are also leading cancers in the EU

Distribution of cancer incidence by sex in Sweden 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.

Compared to other EU countries, incidence of skin melanoma is high among both men (45 new cases per 100 000 population) and women (41 per 100 000) in Sweden. Incidence of prostate cancer is also higher (223 new cases per 100 000 population) than the EU average (159 per 100 000). Conversely, incidence of lung cancer among men (45 new cases per 100 000 population) is considerably lower than the EU average (97 per 100 000).

Cancer mortality is among the lowest in the EU, but is still the leading cause of years of life lost

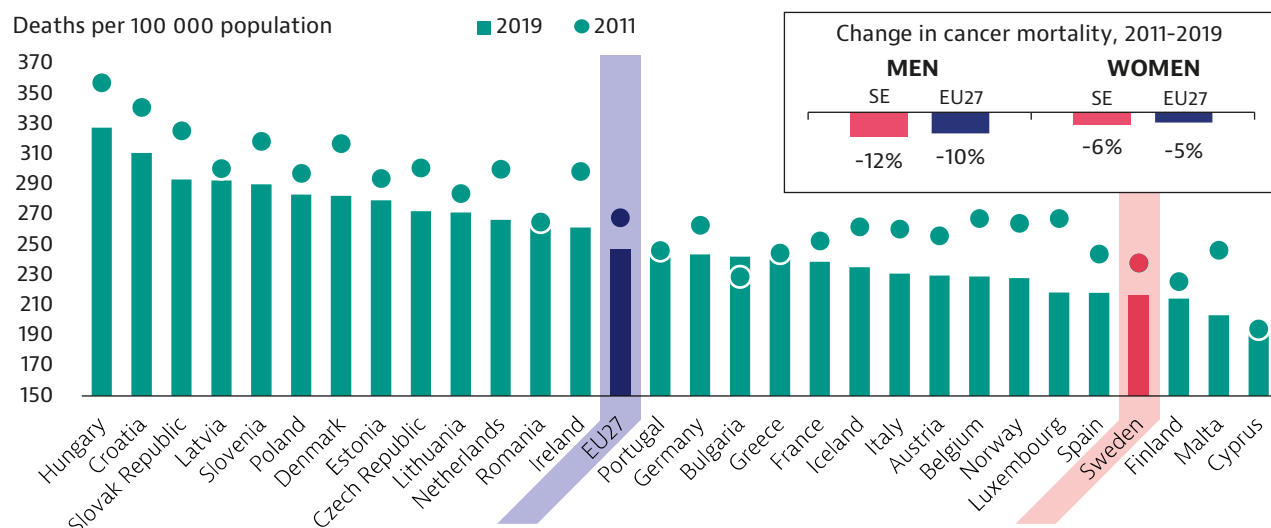
Cancer contributes to around 18 % of the total burden of disease expressed as disability-adjusted life years in Sweden, compared to about 20 % across the EU. Cancer mortality is among the lowest in the EU, at 217 deaths per 100 000 age-standardised population compared to the EU average of 247 deaths per 100 000 population.

In 2011-2019, cancer mortality decreased more in Sweden than the EU average (Figure 2). The reduction was 12 % among men (compared to 10 %

across the EU) and 6 % among women (compared to 5 % across the EU). Thus, with already low cancer mortality, Sweden made more gains than the EU as a whole, which could indicate that inequality in cancer mortality between countries is widening rather than shrinking.

However, cancer is the second largest cause of death in Sweden after cardiovascular disease, and it is the leading cause of potential years of life lost (YLLs). In 2018 cancer accounted for 915 YLLs per 100 000 people aged up to 75 years, compared to the EU average of 983 YLLs. Cancer is the leading cause of YLLs for both sexes, but women lose 5 % more years of life than men (939 YLLs among women compared to 893 YLLs among men). As mortality from cardiovascular disease is decreasing considerably faster than cancer mortality, cancer is likely to become the leading cause of death. In 2021, cancer mortality had already surpassed cardiovascular mortality for women in one of the 21 regions in Sweden.

Figure 2. Cancer mortality in Sweden is among the lowest in the EU



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

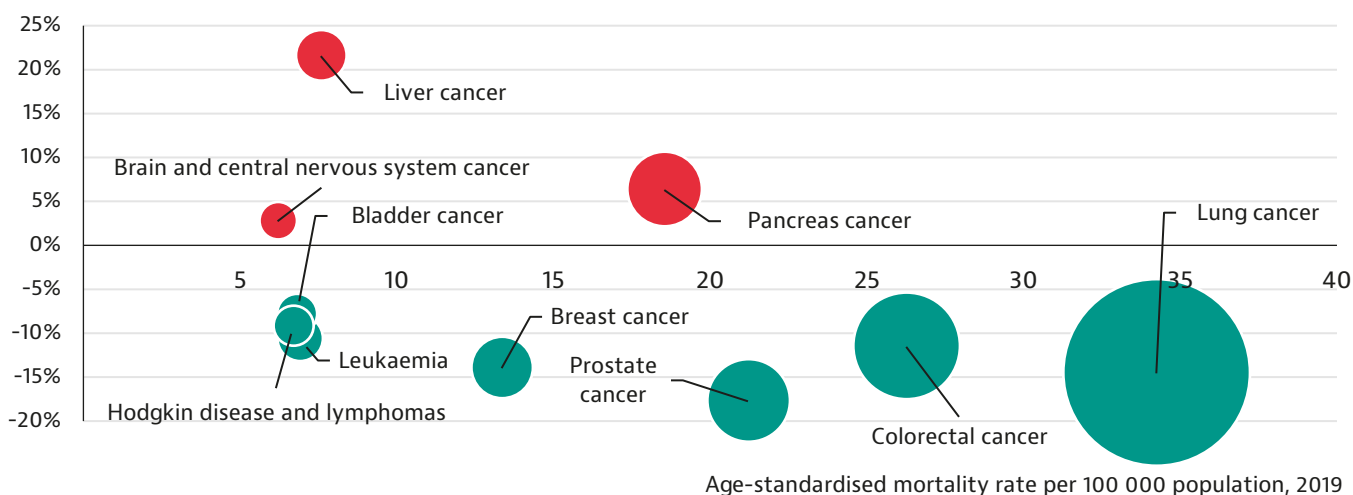
Lung cancer is the largest cause of cancer death among women and among both sexes combined, while prostate cancer is the largest cause of cancer death among men. Breast cancer is the second largest cause of cancer death among women, followed by colorectal cancer, pancreatic cancer and haematological malignancies. For men, lung cancer is the second largest cause of cancer death, followed by colorectal cancer, haematological malignancies and pancreatic cancer. Age-adjusted mortality decreased for most cancer types in Sweden during 2011-2019 (Figure 3), with a few exceptions such as liver cancer (from 6.2 deaths per

100 000 age-standardised population in 2011 to 7.6 deaths per 100 000 in 2019) and pancreas cancer (from 17.4 deaths per 100 000 age-standardised population in 2011 to 18.6 deaths per 100 000 in 2019).

In 2020, gastric (stomach) cancer was expected to constitute 2 % of new cancer cases among men and 1 % among women, and it accounted for an overall mortality rate of 5 per 100 000 population in 2019, which is lower than the EU average (10 per 100 000 population).

Figure 3. Mortality decreased for most common cancers with a few exceptions like liver, pancreas and brain cancers

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



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

The National Cancer Strategy introduced national guidelines, improved quality assurance and care pathways

Sweden adopted a National Cancer Strategy in 2009. Its overarching goals are a) to reduce the risk of developing cancer; b) to improve the quality of cancer patient management; c) to improve survival time and improve quality of life after a cancer diagnosis; d) to reduce regional differences in survival time; and e) to reduce differences in morbidity and survival time between population groups. Six regional cancer centres were founded in 2010. One of their main responsibilities was to support the implementation of the National Cancer Strategy which included the formation of national and regional specialist collaborative groups and national guidelines. Additional resources were provided to develop and improve the use of Clinical quality registers for monitoring of adherence to guidelines. Today, Sweden has more than 30 clinical cancer quality registers that are used for quality improvement and for clinical research.

In addition, standardised care pathways were introduced in Sweden in 2015. The aim of the programme was to reduce waiting times, standardise diagnostic strategies, increase patient satisfaction and reduce regional inequalities in timely access to care. The goal was that at least 70 % of cancer patients should be included in a pathway and that 80 % of patients included in the pathways start treatment within the set time limits. The regional cancer centres were tasked with coordination of implementation and follow-up of the waiting times. Standardised care pathways

were implemented for 31 cancer types during 2015-2018. In 2021, about three quarters of all cancer patients were included in a cancer pathway.

Childhood cancer care is organised into six specialised childhood cancer centres

About 350 children and adolescents aged under 18 years are diagnosed with cancer each year in Sweden. The age-standardised incidence cancer rate in children under 15 years in 2020 was 13 per 100 000 population, which is lower than the EU average (15 per 100 000). Swedish childhood cancer care is organised in six childhood cancer centres, where all children and adolescents aged under 18 years are treated and followed up. The overall childhood cancer survival rate in Sweden today is around 85 %.

Mechanisms are in place to protect people with cancer

The right to be forgotten (a right that gives individuals the ability to exercise control over their personal data, including health information, by deciding what should be accessible to the public) is not embedded in Swedish legislation. Instead, vulnerable groups are protected in insurance contract law by “the obligation to contract”, which means that an insurance company cannot refuse to give a person health insurance, within their standard range of insurance products, unless special reasons, further specified in the law are at hand. The company must make an individual assessment based on science and proven experience.

After medical treatment is completed and the cancer patient is considered healthy, the person with a history of cancer may return to work. The individual’s ability is compared to the tasks and duties they should perform, and a job contract

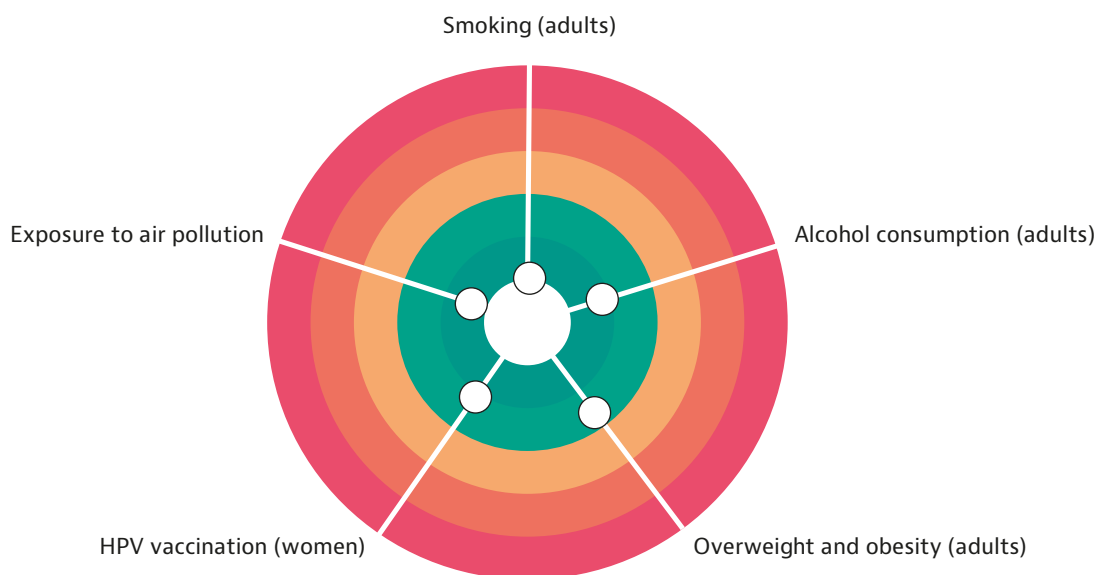
cannot be terminated if they can perform relevant tasks and duties, at least in part. Rehabilitation and matching the person with the workplace is done in collaboration with the employer, the Swedish Social Insurance Agency and the individual.

3. Risk factors and prevention policies

Prevalence of risk factors for cancer is generally lower in Sweden than in the EU (Figure 4), but there are some concerning trends. The large difference in exposure to cancer risk factors between socioeconomic groups – especially for smoking – and the increasing prevalence of obesity and physical inactivity among children and adolescents are especially worrying. While many tobacco control measures are in place, and trends of tobacco smoking are decreasing among all socioeconomic groups, the increasing rates of obesity and physical inactivity among children and adolescents warrant continued attention.

Responsibility for prevention of health risk factors is distributed among a broad range of actors at all levels of Swedish society, including the national, regional and municipal levels. Non-governmental organisations also play a significant role. Examples of responsible institutions include the government; government agencies including the Public Health Agency, National Food Agency and National Board of Health and Welfare; health care providers; schools; and urban planners. Non-governmental organisations also play a significant role. In 2020, total expenditure on prevention accounted for 3.3 % of current health spending, which is slightly below the EU average of 3.4 %.

Figure 4. Risk factors for cancer are lower in Sweden than in other EU countries



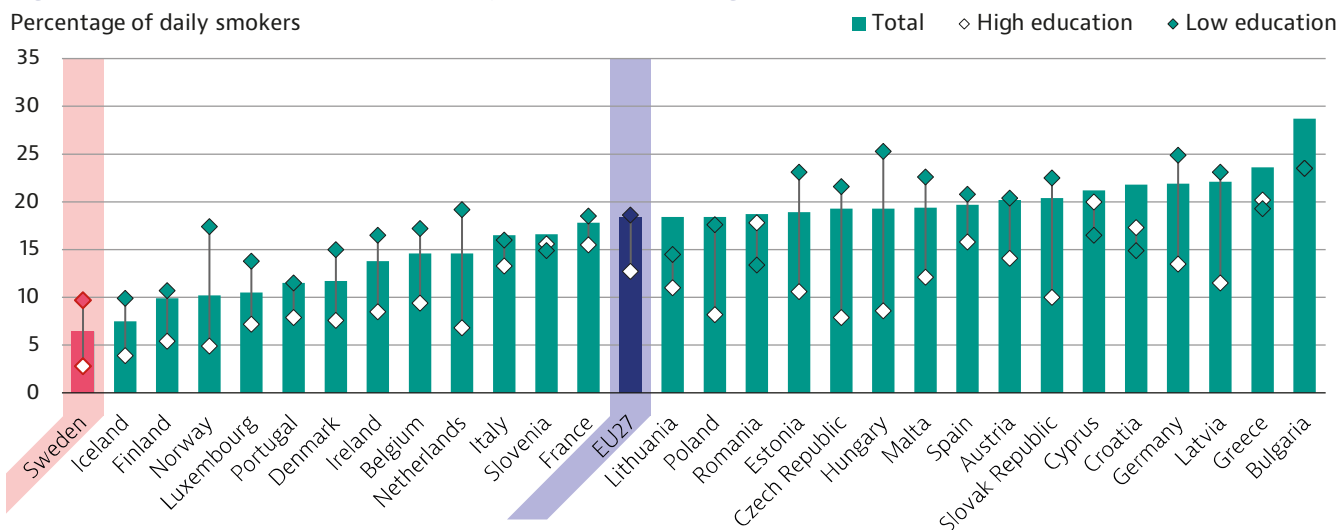
Note: The closer the dot is to the centre, the better the country performs compared to other EU countries. No country is in the white “target area” as there is room for progress in all countries in all areas.
 Sources: OECD calculations based on the European Health Interview Survey (EHIS) 2019 for smoking and overweight/obesity rates, OECD Health Statistics 2022 and WHO Global Information System on Alcohol and Health (GISAH) for alcohol consumption (2020), WHO for human papillomavirus (HPV) vaccination (through the WHO/UNICEF Joint Reporting Form on Immunization) (2020), and Eurostat for air pollution (2019).

Sweden has the lowest smoking prevalence in the EU

Prevalence of smoking has decreased steadily across sexes, ages and socioeconomic groups. In 2019, according to the EHIS, 6.4 % of the population were daily smokers compared with the EU average of 18.4 %. Differences in smoking prevalence between men and women and between age groups was lower in Sweden¹ than other EU

countries, but differences between socioeconomic groups are marked. In 2019, the proportion of daily smokers was more than three times higher among people with lower (9.7 %) than higher (2.8 %) education levels (Figure 5). The ratio was similar between people on lower (11.5 %) and higher (3.4 %) incomes. The relative gaps in smoking prevalence by education and income are more pronounced in Sweden than in most other EU countries.

Figure 5. Low education remains a key driver of smoking habits in Sweden



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

Moist snuff (“snus”) use is widespread in Sweden. This has several adverse health effects, including increased cancer risk. According to the IARC, smokeless tobacco is associated with cancers of the oral cavity, oesophagus and pancreas. Snus use may also increase the risk of cancer of the stomach and rectum, and may increase mortality after a diagnosis of cancer (all types of cancer assessed together, and prostate cancer specifically), both when the cause of death is considered cancer-related and for all causes (FHI, 2019). New nicotine products such as e-cigarettes and nicotine pouches are introduced to the market. The risk of cancer of these products are not yet known but due to the health risks with nicotine they will need close monitoring. Additionally, in 2020, around 1 % of the population aged 15 years and over were regular users of vaping products – around half the EU average (2.1 %).

Several tobacco control measures are in place in Sweden. In addition to taxation aimed at reducing demand, tobacco package warning messages were introduced in 1977, an advertising ban in 1993, a

minimum age of 18 to buy tobacco products from 1997, and a ban on smoking in bars and restaurants came into force in 2005. In 2019, the smoking ban was extended to include outdoor seating and some other public spaces, such as train stations, bus stops and playgrounds.

Air pollution in Swedish cities is fairly low relative to the EU average

Particulate matter, a component of outdoor air pollution, has been classified as carcinogenic to humans by the IARC. PM₁₀² is considered small enough to be inhaled deep into the lungs where, depending on composition, it can cause lung cancer. Important local sources of PM_{2.5} include traffic and wood burning, where especially combustion products such as tar and soot are known to be carcinogenic. Quantities of PM_{2.5} and PM₁₀ are measured regularly in European cities. The levels in Swedish cities (5.8 µg/m³ of PM_{2.5} and 12.3 µg/m³ of PM₁₀) were notably lower than the EU averages (12.6 µg/m³ of PM_{2.5} and 20.5 µg/m³ of PM₁₀) in 2019.

¹ According to National Health Survey, 5.9 % of men and 6.1 % of women smoke in 2021.

² Particulate matter (PM) is classified according to size: PM₁₀ refers to particles less than 10 micrometres in diameter; PM_{2.5} to particles less than 2.5 micrometres in diameter.

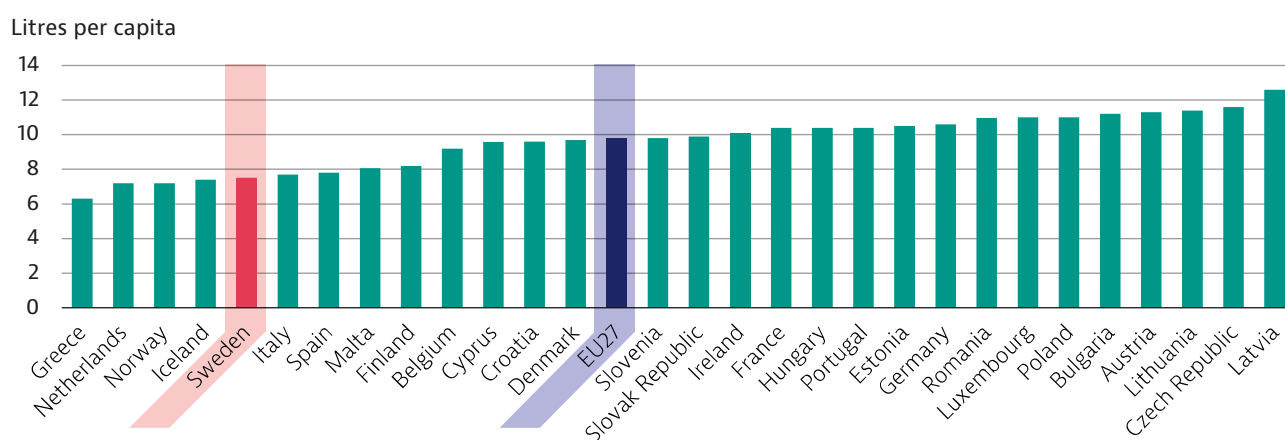
Total alcohol consumption in Sweden is low, but hazardous consumption is close to the EU average

Total alcohol consumption per capita in Sweden is lower than the EU average (Figure 6). In 2020, among people aged 15 years and over, alcohol consumption accounted for 7.5 litres of pure alcohol on average per year and per capita, which is 23 % less than the EU average (9.8 litres).

Prevalence of hazardous drinking in Sweden (2.4 %) is close to the EU average (2.7 %). Women (2.8 %) have higher reported prevalence of hazardous drinking than men (2 %) at the threshold of 20 grams per day for women and 40 grams per day for men.

The politics of Swedish alcohol control has a long and complex history. The sentiment was that alcohol use caused substantial health and social problems, which worsened during the nineteenth century. In 1922, a non-binding referendum was held on prohibition of liquor. The prohibition side lost very narrowly, but as a political compromise an alcohol rationing system was kept in place until 1955. After that, control measures have focused on price (through taxes) and restricting availability through the retail monopoly of state-owned System-bolaget AB. Price and availability are two of the three alcohol control measures recommended by WHO. The third measure, advertisement regulation, is also used in Sweden.

Figure 6. Overall alcohol consumption in Sweden is among the lowest in the EU



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

Trends in prevalence of overweight and obesity among children and adolescents are concerning

According to the EHIS, in 2019, the rate of overweight or obesity in Sweden was just over 50 % and just below the EU average (52.7 %). Prevalence of overweight and obesity among Swedish women (45.7 %) was in line with the EU average, while prevalence among men (57.1 %) was lower than the EU average. Overweight and obesity were more common among people with lower education levels among both men (59.4 %) and women (51.4 %), although both groups were still below the EU averages of 62.9 % for men and 55.1 % for women. Among people aged 65 years and over, prevalence of overweight and obesity was 56.5 %, which is below the EU average of 62.8 %.

The incidence of obesity among adults has tripled, from 5 percent in 1980 to just over 14 percent in 2020. Among those over 40, there was a 2-fold increase, while there was a 4-fold increase in incidence in adults under 40. A particularly concerning trend is the increasing prevalence of

both overweight and obesity among Swedish school children. Among children 11-15 years of age, the prevalence of obesity has increased fivefold from the late 1980s to 2020. Measured in 2017–2018, the prevalence of obesity in schoolchildren 11-15 years of age was 6 % and the prevalence of overweight was 14 %.

Physical activity is high among adults but less so among children and adolescents

In 2019, physical activity rates among the adult population in Sweden were higher than the EU average. The proportion of the adult population engaging in aerobic exercise for at least 150 minutes per week was 56 %, which is well above the EU average of 33 %. There were no relevant differences between men and women. However, according to Swedish national surveys (Folkhälsomyndigheten 2022), low levels of physical activity are common among children and adolescents. For example, measured 2017–2018, only 11 % of children aged 15 years undertook sufficient physical activity according to the WHO

recommendations of at least one hour of moderate-to-vigorous physical activity per day for this age group. Furthermore, physical activity was more prevalent among people with higher (62.6 %) than lower (49.6 %) education levels, but it was well above the EU averages for people with higher (42.4 %) and lower (24.5 %) education levels.

Fruit and vegetable consumption in Sweden is lower than the EU average

Prevalence of consumption of a serving of vegetables at least once a day in Sweden was slightly over 50 % in 2019, which is on a par with the EU average. However, fruit consumption was considerably lower than the EU average: only 46 % of the population had at least one serving of fruit per day, compared to 56 % across the EU.

4. Early detection

Swedish health care offers cost-free screening for breast, colorectal and cervical cancers

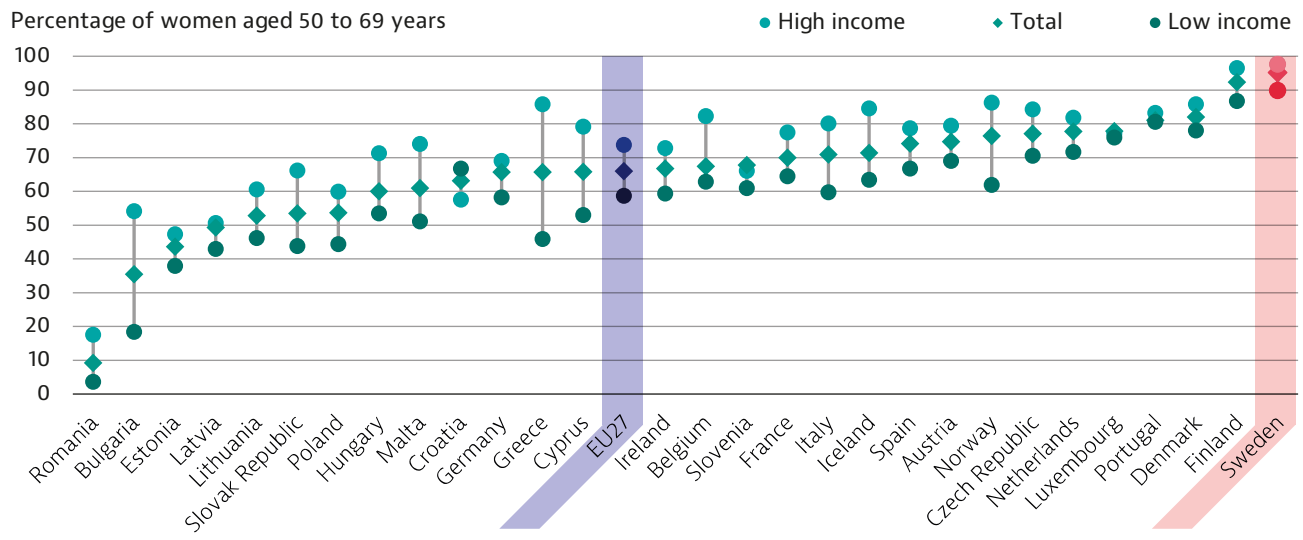
Sweden has three nationwide population-based screening programmes (screening offered to a specific at-risk target population) that are free of charge for participants. The programmes include screening for cervical, breast and colorectal cancers. Many changes have been made to national screening recommendations in the last decade. In 2014, the National Board of Health and Welfare recommended that colorectal cancer screening should be offered to the population aged 60-74 years; and in 2015 the National Board of Health and Welfare issued recommendations that cervical cancer screening should be changed from primary cytology (smear test) to primary HPV testing.

The Swedish health care system is highly decentralised, and the 21 regions – which are the main health care providers responsible for administering screening programmes – have implemented the new guidelines at different paces, meaning that quite large regional differences in implementation are apparent.

High participation in breast cancer screening contributes to low breast cancer mortality

The Swedish population-based breast cancer screening programme started in the mid-1980s. Today, all women aged 40-74 years are included in the programme, with a recommended screening interval of 18-24 months. Breast cancer screening is free of charge, and participation in the programme is high. This is reflected in the high five-year breast cancer survival rate (89 %) for women diagnosed during 2010-2014. Sweden also has among the

Figure 7. Swedish women have the highest participation rates in breast cancer screening in the EU



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.

lowest breast cancer mortality rates in the EU, with an age-standardised rate of 13 deaths per 100 000 women, compared to the EU average of 18 deaths per 100 000 women.

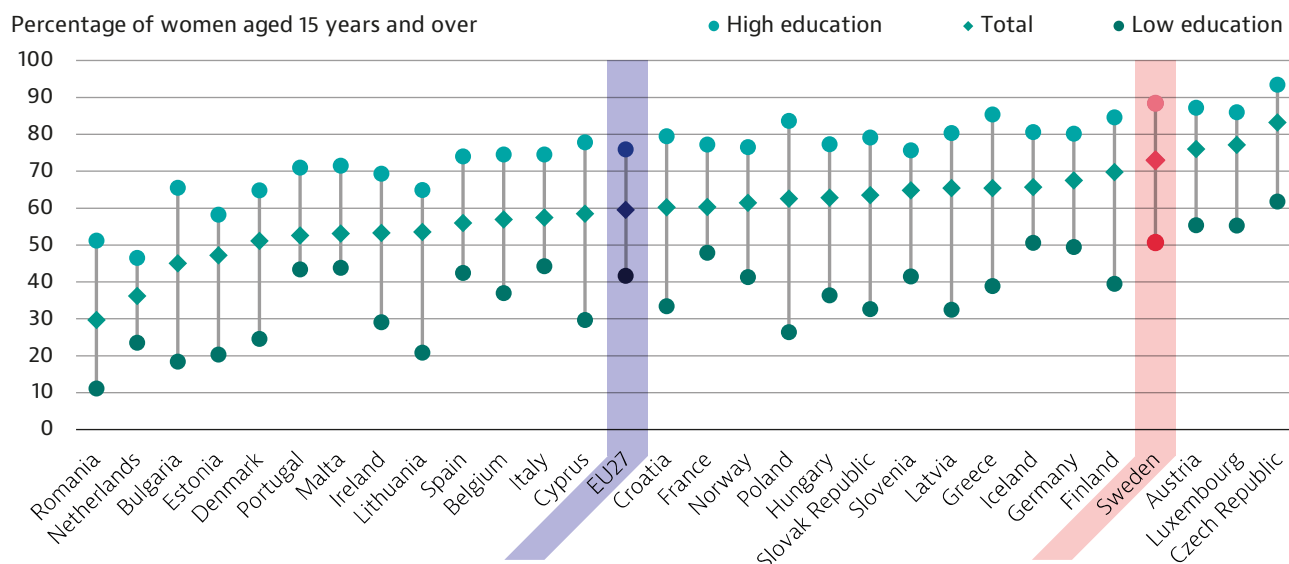
According to the EHIS, Swedish women aged 50-69 years have the highest participation rate (95 %) in breast cancer screening compared to the EU average (66 %), but there are disparities between socioeconomic groups (Figure 7). Participation rates are higher among those on higher (98 %) than lower (90 %) incomes, although the gap is smaller than the EU average (74 % among those on higher vs. 59 % among those on lower incomes).

Cervical cancer screening changed from primary cytology to primary human papillomavirus test

The Swedish cervical cancer screening programme was introduced in the late 1960s, and has been

a successful cancer intervention programme. Participation in cervical cancer screening is among the highest in the EU, with 73 % of Swedish women aged 15 and over reporting having had a cervical cancer screening test in the last three years (compared to 60 % on average across the EU). There are notable differences in reported participation between women with higher (88.4 %) and lower (50.7 %) education levels (Figure 8). The same pattern emerges for self-reported participation among women on higher (81 %) and lower (60 %) incomes. Age-standardised cervical cancer mortality in Sweden (2.5 per 100 000 population) is 37 % lower than the EU average (3.9 per 100 000), but notably higher than in some EU countries, more precisely, Luxembourg (1.8 per 100 000), Finland (1.5 per 100 000) and Italy (1.3 per 100 000).

Figure 8. Low educated women report participating far less in cervical cancer screening relative to high educated women



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 current screening programme recommendation is primary screening with an HPV test for women aged 23 years and over, with an initial screening interval of five years and an interval of seven years among women aged 49 years and over. The last screening should be offered to women aged between 64 and 70 years. The recommendation changed from primary cytology to primary HPV test in recent years, and women who were last screened with a smear test should still be invited with the shorter intervals used in earlier recommendations. When the first recommendations on primary screening with HPV

test were issued, cytology was still recommended for women aged 23-29 years because of the high prevalence of HPV infection in this age group. This recommendation was changed recently, as women now entering the screening programme are to a high extent vaccinated against HPV infection (see Box 1).

Box 1. Boys have been included in the human papillomavirus vaccination programme since 2020

According to Swedish national statistics, around 570 new cases of cervical cancer were diagnosed yearly between 2016 and 2020, which corresponds to about 11 cases per 100 000 women. HPV infection also causes other types of cancer, including some types of head and neck cancer. Girls have been

offered vaccination against HPV infection – the main cause of cervical cancer – through the national childhood vaccination programme since 2012. Since 2020, boys have also been included in the programme. Vaccination are given in schools in the age of 11-12 years, and are free of charge.

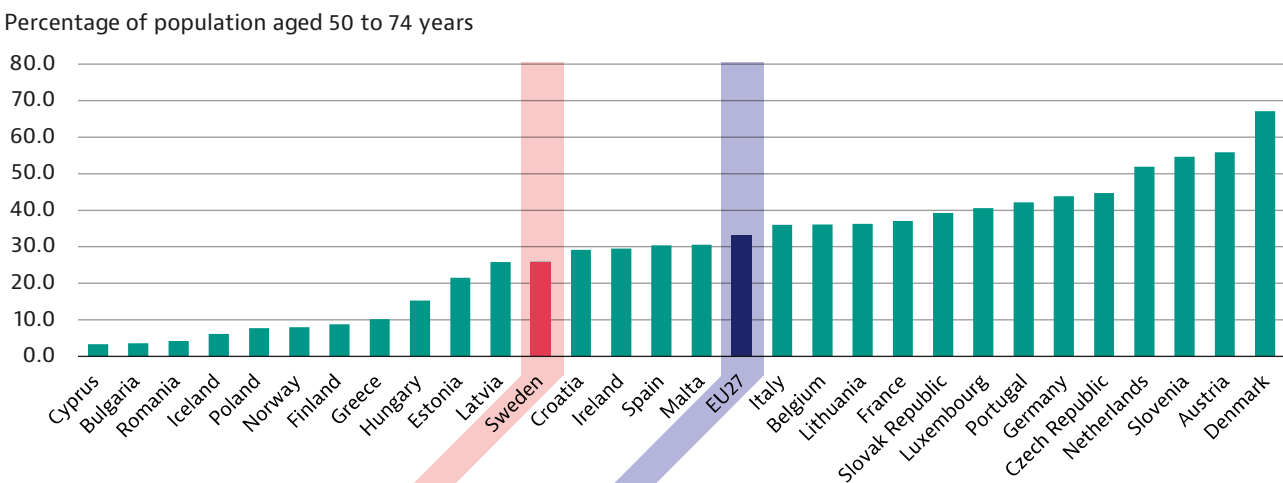
Colorectal cancer screening has been rolled out in all regions in Sweden

Colorectal cancer is one of the leading causes of cancer death in Sweden. In 2019, colorectal cancer mortality was around 26 deaths per 100 000 population, which is slightly below the EU average (29 deaths per 100 000). In 2014, the Swedish National Board of Health and Welfare issued a recommendation that men and women aged 60-74 years should be offered colorectal cancer screening with a faecal blood test. Owing to circumstances such as ongoing screening studies and shortages of some categories of health care professionals – notably colonoscopists – the

colorectal screening programme was implemented unevenly across geographical regions of Sweden. In 2022, however, the last regions have started to send invitations to the regular colorectal cancer screening programme.

In 2019, according to the EHIS, 26 % of the population aged 50-74 years reported having participated in colorectal cancer screening in the last two years, which is lower than the EU average (33 %) (Figure 9). In 2014, participation rates in the colorectal screening programme were 31 % higher among people living in rural (22 %) than urban (17 %) areas.

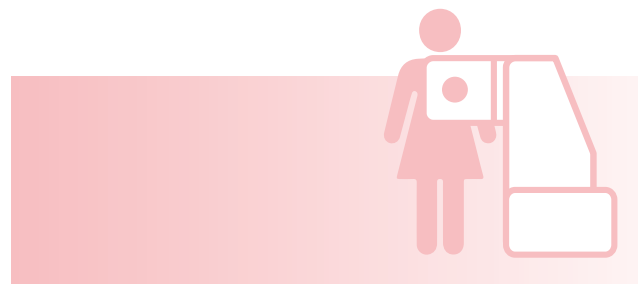
Figure 9. Uptake of colorectal cancer screening in 2019 reflects the incomplete programme rollout



Note: The EU average is weighted (calculated by Eurostat). The figure reports the percentage of population aged 50 to 74 years who reported having a faecal occult blood test in the past two years. Source: Eurostat Database (EHIS). Data refer to 2019.

Discussions on the design of new cancer screening programmes are underway

In 2019, the National Board of Health and Welfare prepared a report on possible inclusion of lung cancer and prostate cancer in the national screening programme. However, no decisions have yet been made on the matter (TNBHW, 2019).



5. Cancer care performance

5.1 Accessibility

The health care system limits financial inequalities in access to care with caps on copayments

All Swedish residents are covered for health services, with only small out-of-pocket copayments. A visit to a primary care facility costs between EUR 10 and EUR 30 (SEK 100–300), and a visit to specialised care facility between EUR 20 and EUR 40 (SEK 200–400), depending on the region. Copayments are capped at about EUR 120 (SEK 1200) per 12-month period. Medical consultations are free of charge for patients aged up to 18 years, and for those aged up to 20 years in some regions.

The patient cost for prescription drugs is capped at EUR 240 (SEK 2400) for a 12-month period. Non-residents, including asylum seekers and people staying in Sweden without support under Swedish law, are entitled to emergency health care and dental care that cannot wait. They are also entitled to maternal, antenatal, and delivery care, advice on contraception and abortion and care provided under the Swedish Communicable Diseases Act (a law intended to prevent the spread

of contagious diseases). Furthermore, non-resident people under the age of 18 years are offered the same health care as resident children in the same region. These rules apply to people who are not just temporarily visiting Sweden.

There are shortages of some health professionals in cancer care

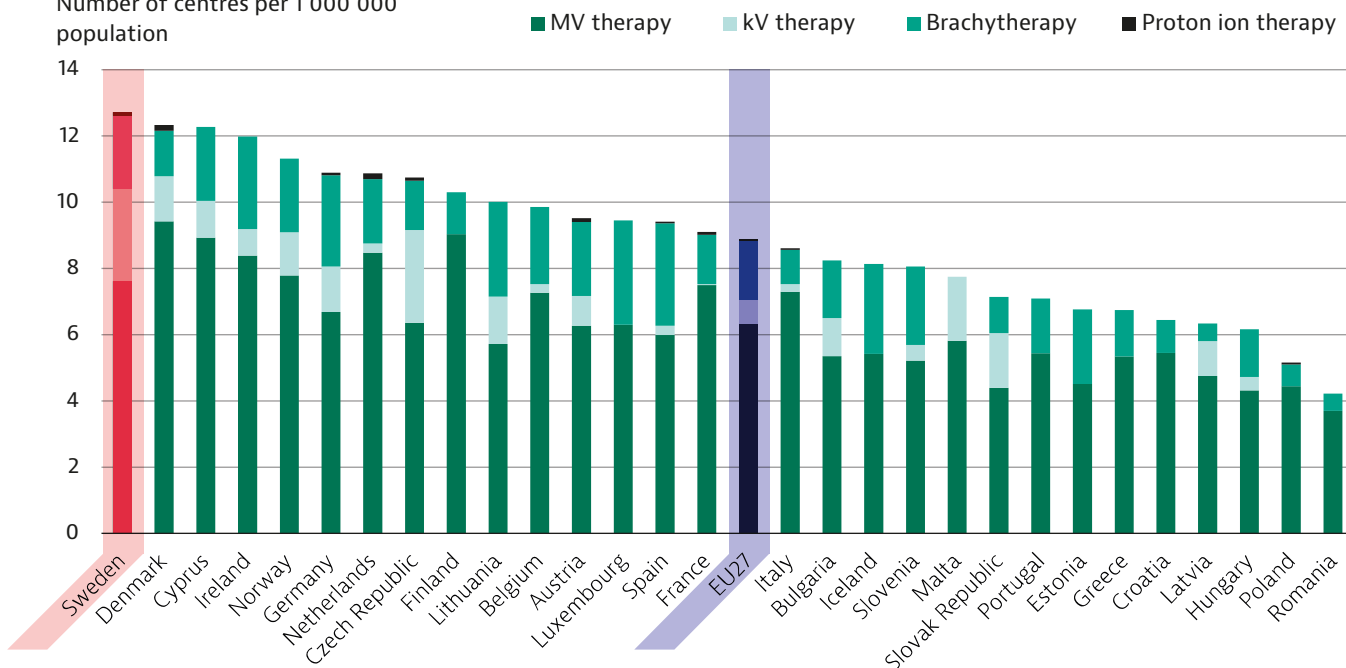
The density of oncologists has increased in recent decades, from 3.8 per 100 000 population in 2005 to 5.7 per 100 000 in 2014. In 2021, 6 of the 21 regions reported a shortage of oncologists, and according to the Swedish nurse's association, there is also a shortage of oncology nurses. All 21 regions in Sweden reports a shortage of specialist nurses. The largest deficit is seen for critical care nurses and anaesthesia nurses. This can create bottlenecks, having a negative impact on accessibility to cancer care.

Radiation therapy equipment is widely available across regions

Sweden has the highest level of radiation therapy equipment per capita in the EU (13 centres per 1 000 000 compared with the EU average of 9 centres) (Figure 10). Based on data reported by the IAEA, megavolt (MV) radiotherapy (79 units)

Figure 10. Sweden has high accessibility to radiation therapy equipment

Number of centres per 1 000 000 population



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

and brachytherapy (23 units) equipment is widely available across the country. Additionally, a proton therapy centre has been established in Uppsala region.

More than a third of this equipment is less than 5 years old. However, a recent review of radiation therapy in Sweden points to a relatively low number of linear accelerators compared to the other Nordic countries, and to restrictions on utilisation of the equipment because of a lack of radiation oncologists and specialist nurses (Bergfeldt et al., 2022).

Geographical inequalities hinder access to cancer rehabilitation

Large inequalities in access to cancer rehabilitation care exist in Sweden – mainly related to differences across geographical regions but to some extent also depending on diagnosis. While some regions offer good access to rehabilitation for cancer patients, some do not. Access to diagnosis-specific rehabilitation is often better for the most common cancer types, and patient advocate associations can sometimes also provide education and psychosocial support for some of these.

Cancer care pathways were designed to improve worrying waiting times

The problem with waiting times in the Swedish health care system has been discussed in public debate at least since the 1960s. The consensus is that waiting times are too long and that improvements have not been sufficient. During the last three decades, the problem has been addressed by the National Guaranteed Access to Health Care Policy, first as an agreement between national government and the regions. In 2005, this Policy was implemented nationwide, and it was inscribed to bylaws in 2010. It specifies time limits within which the patient should, if needed, have access to different levels of care in the health care system.

However, the maximum waiting times in the National Guaranteed Access to Health Care Policy are not suited to cancer care, which is usually more urgent than care in other clinical areas. Hence, standardised cancer care pathways were introduced to address the specific needs of people with cancer to ensure timeliness of treatment. During 2015-2018, more than 30 standardised pathways were introduced. Waiting times became shorter for patients with some cancer diagnoses, but not for all. The reason for long waiting times is often due to bottlenecks because of lack of certain health care professionals – notably specialist surgeons, surgical nurses, and specialist nurses on wards (see Section 5.2).

Comprehensive cancer centres in Sweden

Sweden now has three Organisation of European Cancer Institutes (OECI) accredited comprehensive cancer centres; Karolinska Comprehensive Cancer Centre, Sahlgrenska Comprehensive Cancer Centre and Skåne University Hospital Comprehensive Cancer Centre. Three other university hospitals; Linköping University Hospital, Uppsala University Hospital and University Hospital of Umeå is currently in different stages in the accreditation process towards comprehensive cancer centres or cancer centres.

Geographical differences exist in access to specialised palliative care

The specialised palliative care is organised into palliative inpatient care and hospices, advanced home care and multidisciplinary palliative care consultant teams assisting hospitals, primary care and municipality health care. In an evaluation made by the National Board of Health and Welfare in 2016, geographical differences were highlighted (TNBHW 2016). Among palliative patients deceased in 2015, between 7 % and 20 % received specialised palliative care depending on which region they lived in. There are geographical differences in accessibility of all three forms of specialised palliative care. The largest difference could be seen for palliative inpatient care, where the proportion ranged from 0 to 14 % depending on the region. These data refer to all palliative patients, not only cancer patients.

Health technology assessment plays a major role in access to innovative cancer medicines

According to a 2019 OECD survey on challenges in access to oncology medicines, Sweden ranked highly for the number of treatments available for cancer care (Chapman et al., 2020). After approval from the European Medicine Agency, cancer drugs are evaluated for efficiency, safety and cost-effectiveness by national agencies. For prescribed drugs, the Dental and Pharmaceuticals Benefits Agency conducts a health economics evaluation and recommends which should be subsidised. For drugs administered in hospitals, Swedish regions and government agencies collaborate in a joint process for introduction of new medicines informed by a health economics evaluation conducted by the Dental and Pharmaceuticals Benefits Agency. Central to this work is the New Therapies Council, a group of experts supporting Swedish county councils by recommending adoption of new drugs and new drug therapies. Use of cancer drugs is indicated in the national treatment guidelines.

5.2 Quality

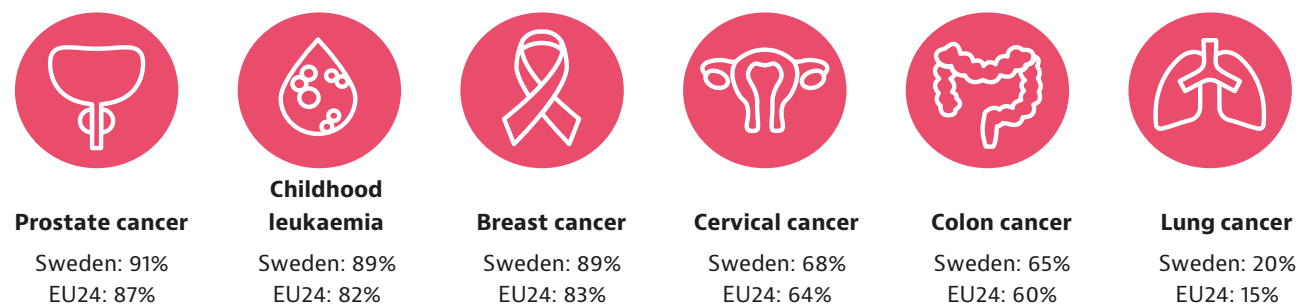
Cancer survival rates in Sweden are higher than those across the EU, suggesting high care quality

Cancer mortality in Sweden is among the lowest among EU countries and shows a decreasing trend (see Section 2). Cancer survival rates in Sweden are among the highest in the EU, and are increasing steadily. The quality of cancer care has improved in recent decades through the establishment of regional cancer centres, use of multidisciplinary

teams, implementation of national clinical guidelines, use of clinical quality registers and good access to innovative treatments. However, differences in survival rates between different cancer types are large. Breast and prostate cancer, for example, have much higher survival rates than lung cancer.

Five-year survival rates are higher in Sweden than the EU average for most cancers (Figure 11), including prostate (91%), breast (89%), cervical (68%), colon (65%) and lung (20%) cancers, as well as for childhood leukaemia (89%).

Figure 11. Cancer survival in Sweden for most common cancers is higher than the EU average



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

The Swedish health care system is very decentralised by design

The Swedish health care system has decentralised governance. The national government is responsible for regulation, and the 21 regions are responsible for financing and providing health care for their residents, whether it is produced by the region, or purchased from a private health care provider or from another region. Some health care services, such as retirement homes and school health care services, are the responsibility of the 290 municipalities. Furthermore, Sweden is organised into six larger health care regions, which cooperate on providing specialised health care such as cancer care. Every health care region has at least one university hospital.

Delivery of cancer care entails a multidisciplinary approach at national, regional and local levels

While several areas of the health care system are decentralised, other features of specialised care are centralised. The Regional Cancer Centres that were established in line with the Swedish Cancer Strategy support the work of national and regional multidisciplinary guideline groups which establish guidelines, and quality registers. These enable the follow up of, for example, national guidelines and quality registers to ensure adherence to national

guidelines and set quality assurance goals. An ongoing development is the centralisation of advanced cancer surgery and advanced oncological treatment enabling procedures that require high resources and competence to be performed at a limited number of centres in Sweden.

Level structuring of cancer surgery and other cancer treatments is also present at all organisational levels; regional, larger health region and national levels. To drive this development and provide access for all patients to the appropriate level of care, patients are increasingly discussed at regional and national multidisciplinary team conferences.

The Cancer Registries nurture cancer care performance assessments and quality improvement cycles

The Swedish Cancer Registry was founded in 1958 and provides enormously valuable infrastructure for statistics, research, evaluation and follow-up of cancer care. The Registry is part of a larger ecosystem of national health registries that includes, for example, the patient registry and the prescribed drug registry. These can be linked to each other and to other national registries, such as the cause of death registry and the education registry, enabling further analysis.

In recent decades, many clinical quality registries have been rolled out, and there are now over 30 registers with national coverage in the area of cancer, covering the vast majority of cancer cases in Sweden. The clinical quality registries are very important tools for quality improvement, research, follow-up and evaluation. While the Cancer Registry, and other national health registries are owned by the state, the clinical quality registries are owned by the regions. They collect information on diagnosis, treatment and clinical outcomes, and can also be linked to the national health data registries mentioned above. Research based on such linkages has produced internationally applicable knowledge.

Patient-reported outcome and experiences measures are embedded in the cancer care pathway

Patient-reported experience and outcome measures are collected in many parts of the Swedish health care system, including in many of the clinical quality registries, some electronic record systems and via a national questionnaire aiming to assess the patient experience in the standardised cancer care pathways. A national working group for patient-reported measures seeks to coordinate collection of data and align the questionnaires to reduce the number of questionnaires on Swedish cancer care.

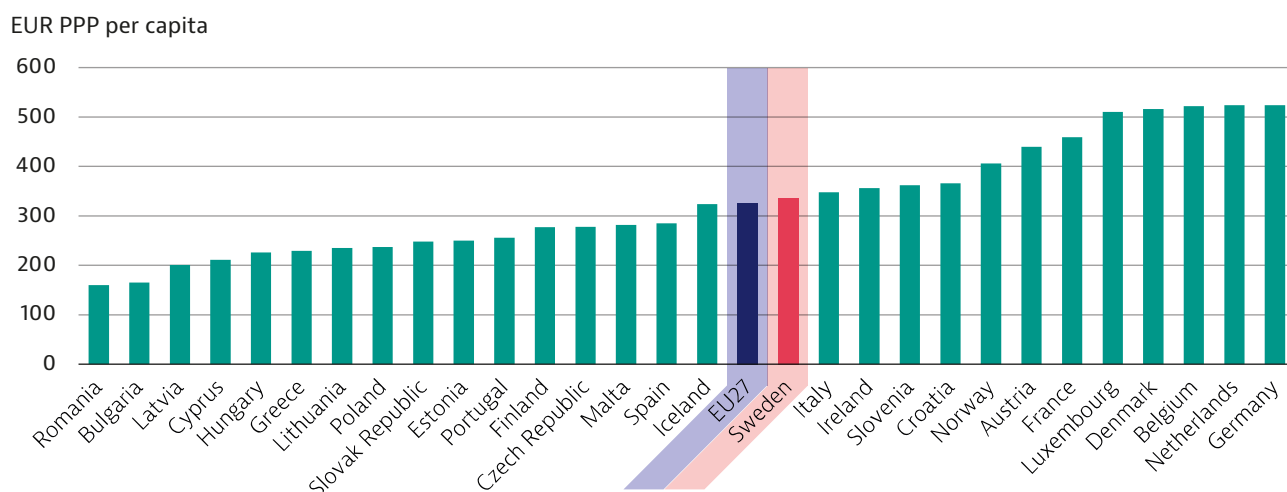
5.3 Costs and value for money

The total cost of cancer in Sweden is on a par with the EU average

In 2018, the total cost of cancer in Sweden was estimated at EUR 4 189 million. Of this, EUR 1 907 million accounted for direct costs of cancer care, excluding EUR 572 million of cancer drug expenditure. Health expenditure on cancer care amounts to only 3.7 % of Sweden's total health care expenditure, which is the lowest proportion in the EU.

The total cost of cancer per capita, adjusted for purchasing power parity (PPP) was EUR 336 – slightly above the EU average of EUR 326 (Figure 12). Distribution of costs was similar to the EU averages: estimated direct costs (health care expenditure, including cancer drugs) were 59 %, compared to 64 % across the EU; indirect costs (loss of productivity) were 43 %, compared to 39 % across the EU; and informal care costs (unpaid care provided by relatives and friends) were 12 %, compared to 12 % across the EU.

Figure 12. The total cost per capita for cancer care is just above the EU average



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

Swedish cancer care is cost effective but there are challenges ahead

Considering quality indicators such as net survival and cancer mortality rates, it is reasonable to state that cancer care in Sweden is cost-effective. Two important challenges for the future regarding

the cost of cancer care are the increasing age of the population – which will translate in higher cancer incidence and fewer people of working age to pay for health care – and the increasing costs of cancer drugs. In recent decades, while other expenditure for cancer care has remained relatively stable, the cost of cancer drugs has increased in Sweden,

as in the rest of Europe (Hofmarcher et al. 2020). Nevertheless, this reflects that new and better, but more expensive, treatment options have been made available for people with cancer.

5.4 COVID-19 and cancer: building resilience

Cancer care was a prioritised part of the Swedish health care system during the pandemic

While resources were allocated to COVID-19 care from many parts of the Swedish health care system, cancer care was not halted. Inclusion of patients in the standardised pathways did not decrease during the pandemic, and waiting times for cancer care decreased. Cancer patients were identified early on in the pandemic as a risk group for severe outcomes when infected with COVID-19. Cancer patients under the age of 70 years were prioritised in the third phase of the Swedish COVID-19 vaccination programme, after the oldest population in nursing homes (Phase 1), and people over the age of 70 years and health care professionals (Phase 2).

The number of diagnosed cancers decreased during the first wave of the COVID-19 pandemic

The total number of diagnosed cancers in Sweden fell by 6.2 % in 2020 compared to 2019. The largest reductions were seen in April (-25 %) and May 2020 (-31 %) (Johansson et al., 2022). During the first six months of 2021, the number of diagnosed cancers had increased by 1 % compared to the same period in 2019. However, this does not account for the expected yearly increase in number of new cancers of around 2 %. This suggests that, as of June 2021, there was still a deficit of diagnosed cancers due to the pandemic (RCC, 2022).

The pandemic halted cancer screening activities

Cancer screening activity decreased during 2020. During the spring of 2020, many screening clinics either halted their activity temporarily or invited fewer people. This measure was aimed at avoiding the spread of COVID-19, but was sometimes also the result of a shortage of health care professionals, who were allocated to other parts of the health care system during the most acute phase of the first wave of the pandemic (March-June 2020). By June 2020, most regular screening activities was resumed, but fewer invitations were sent; attendance was lower than usual, as many people – especially in older age groups – were hesitant to visit screening clinics, and cancelled their

appointments. The number of mammography screening consultations was estimated to have decreased by 20 % in 2020 compared to 2019 (RCC, 2021), while the decrease was less pronounced for cervical cancer screening (NKCx, 2021).

Resilience was built by adopting new innovations in the health care sector

The pandemic accelerated adoption of new innovations in the health care system. For example, there were large increases in online medical consultations, especially at the primary care level, and home-administered HPV tests for cervical cancer screening were introduced in the regular screening programme. In 2020, after the partial closure of cervical screening activities, the National Board of Health and Welfare issued a temporary guideline to allow use of HPV self-sampling tests within the regular screening programme. This became permanent in the latest issue of the cervical cancer screening guidelines, issued in 2022.



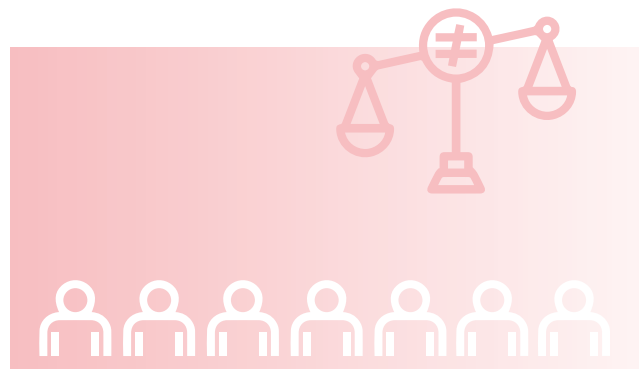
6. Spotlight on inequalities

All Swedish residents are covered for health services, and results in the Swedish cancer care system are generally good, with low cancer mortality and high survival rates. The Swedish Health Care Act aims to produce good health for all residents. However, in practice, geographic inequalities remain, and so do differences in risk factors, cancer morbidity and cancer survival between population groups.

- The proportion of daily smokers is more than three times higher among people with lower than higher education levels. The same is true among people on lower and higher incomes.
- Overweight and obesity rates are 11 percentage points higher among people with lower education levels than higher education levels, and 12 percentage points higher among men than women.
- Uptake of breast and cervical cancer screening is among the highest in the EU, but there are notable differences in participation based on socioeconomic status. There are notable differences in reported cervical cancer screening participation between education groups, where participation rates are 75 % higher among groups with higher (88.4 %) than lower (50.7 %) education levels.
- Participation in the colorectal cancer screening programme is 22 % lower in Sweden than the EU average, with some geographical inequalities in access. These relate to different timeframes for the rollout of the programme in different regions.
- Geographical inequalities in access to rehabilitation for cancer patients in Sweden are large.

Several policies and actions have been implemented to reduce inequalities and improve access to high-quality cancer care on equal terms for all residents. These include standardised cancer care pathways, national treatment guidelines, and regional and national structuring of cancer care, including regional and national multidisciplinary team conferences. Furthermore, a comprehensive data infrastructure has been set up for evaluation and follow-up of the quality of cancer care, and equal access and outcomes between population groups.

The COVID-19 pandemic probably led to further inequalities between population groups, older people were more reluctant to seek health care due to the pandemic and are most likely overrepresented among people who did not have their cancer diagnosed during 2020. The reduced rate of detected cancers during the pandemic is worrying, and the possible consequences must be followed up carefully in the coming years.



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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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