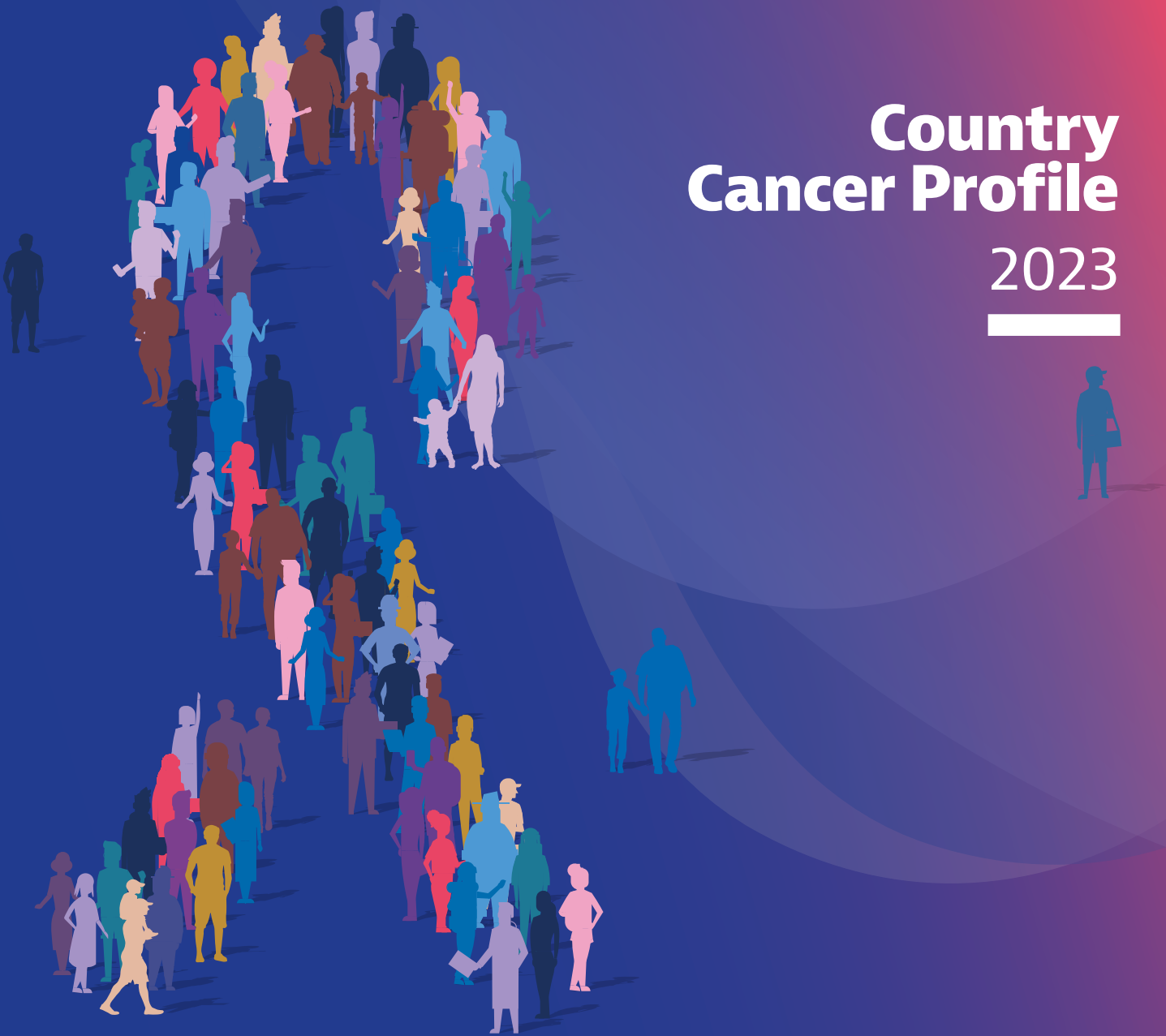




GERMANY

# Country Cancer Profile

2023



## The Country Cancer Profile Series

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

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

### Data and information sources

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

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

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

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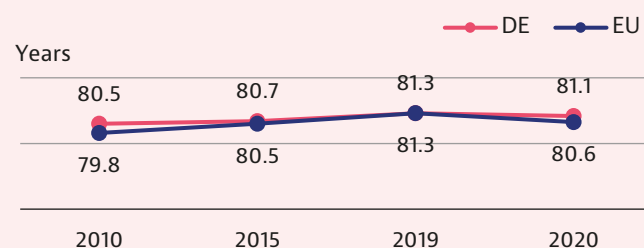
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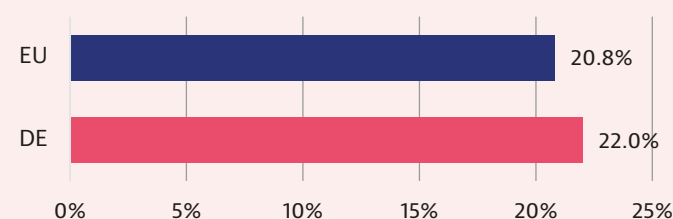
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## Summary of the main characteristics of the health system

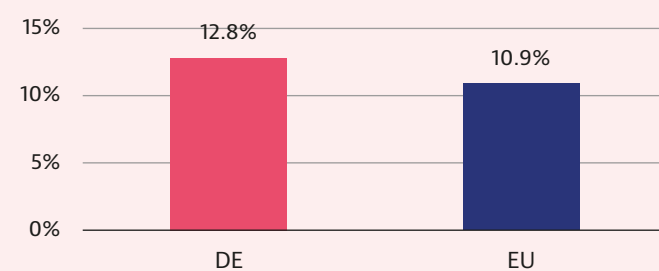
### LIFE EXPECTANCY AT BIRTH (YEARS)



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

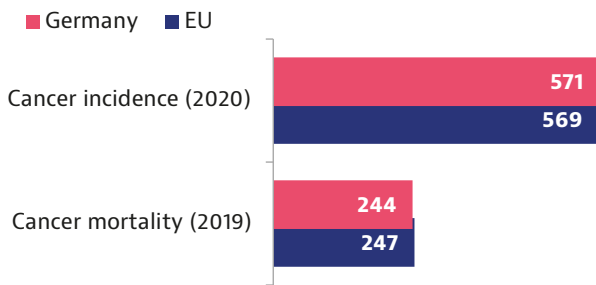


### HEALTH EXPENDITURE AS A % OF GDP (2020)

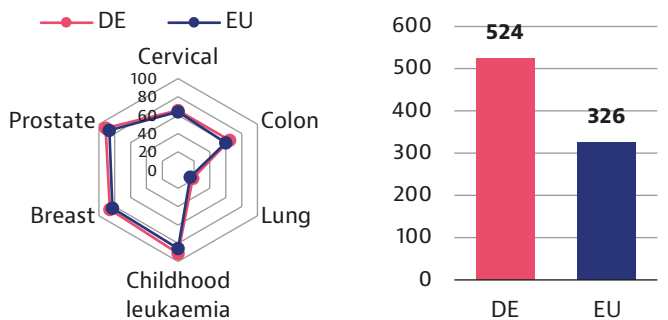
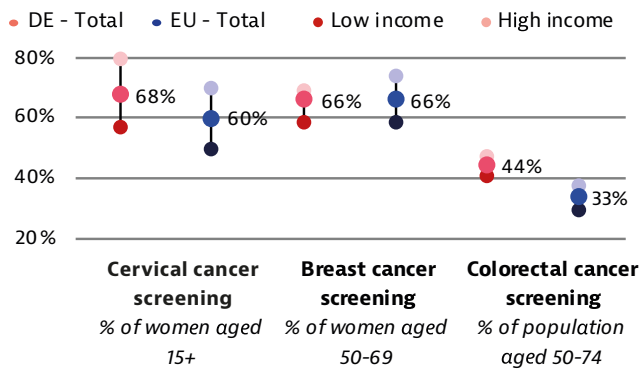
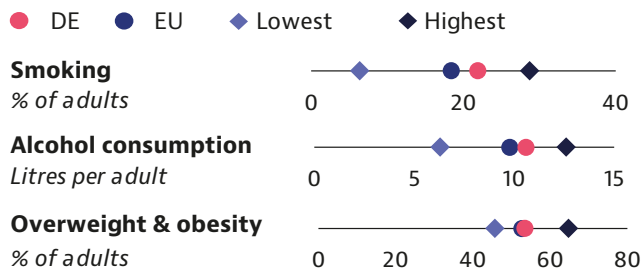


Source: Eurostat Database.

# 1. Highlights



Age-standardised rate per 100 000 population



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

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

## Cancer in Germany

While cancer incidence in Germany has remained constant, prevalence is increasing due to higher survival rates. On an age-standardised basis, estimated incidence is close to the EU average but declining. Lung cancer remains the deadliest, while mortality from lung, colorectal and gastric (stomach) cancers are declining.

## Risk factors and prevention policies

Prevalence of smoking and overall alcohol consumption remain high in the population, and overweight and obesity are on the rise, particularly affecting less privileged population groups. Cancer prevention is part of broader policies for health promotion and prevention of non-communicable diseases.

## Early detection

Early detection is part of the National Cancer Plan, and national screening programmes exist for breast, colorectal and cervical cancer. Uptake of breast, colorectal and cervical cancer screening is high and slightly above the EU average for colorectal and cervical cancer.

## Cancer care performance

Access to care is generally not considered a major issue in Germany, which has among the lowest unmet medical needs in the EU. However, direct health care costs attributable to cancer are higher than in any other EU country. Five-year net survival increased or remained constant between 2004 and 2014 across nearly all of the most common cancers and survival remains above the EU average. For people with rare cancers, the five-year survival rate is above the EU average, but remains below that in the top-performing countries.

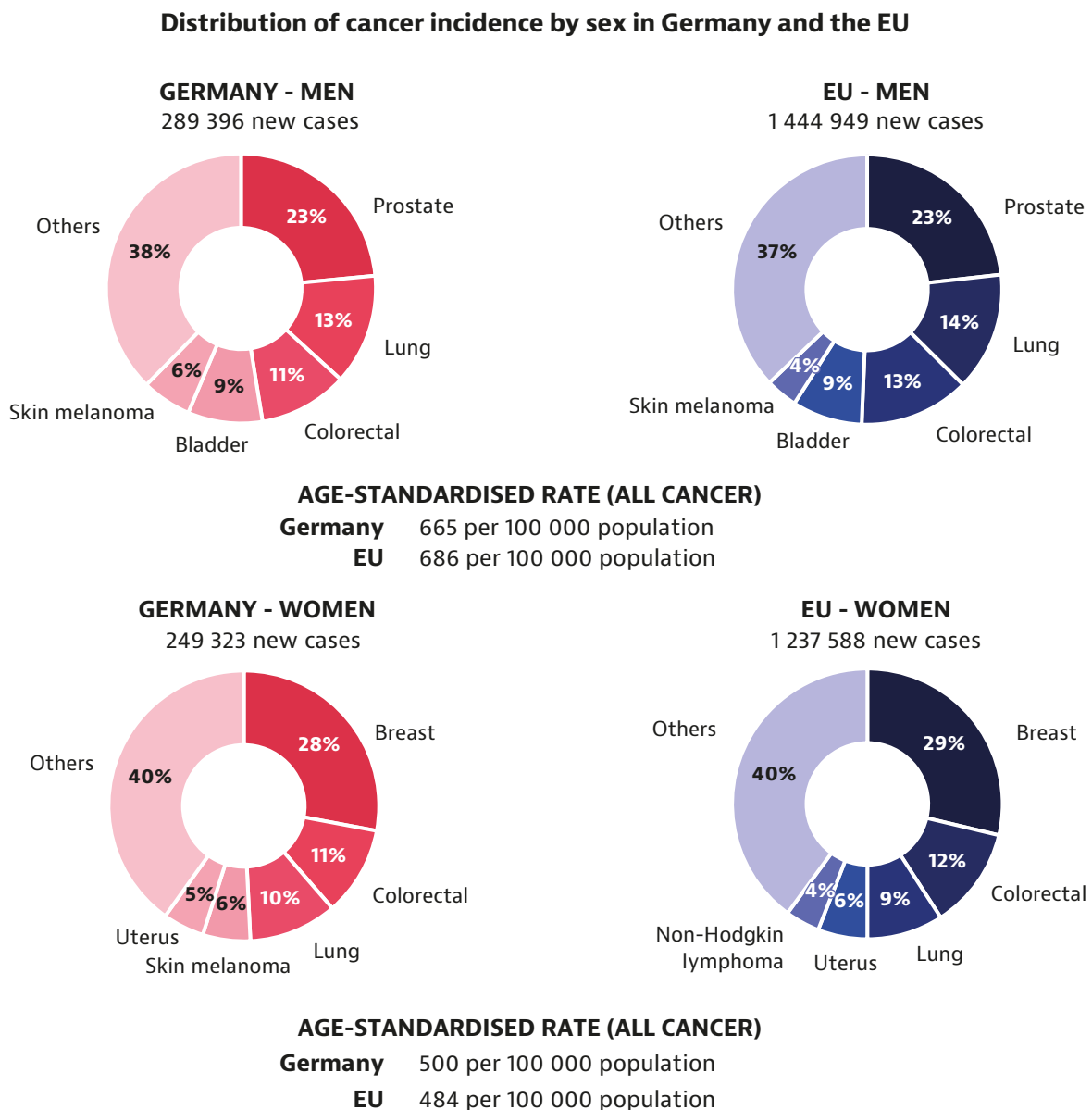
## 2. Cancer in Germany

Age-standardised incidence of cancer has been decreasing in Germany since 2017 but, given an ageing population and the increasing risk of developing cancer with higher age, unadjusted incidence has not changed markedly in recent years. Prevalence is increasing, mainly as a result of better chances of survival for cancer patients (ZfKD & GEKD, 2021).

### More than 530 000 new cancer cases were expected in Germany in 2020

According to European Cancer Information System (ECIS) of the Joint Research Centre based on incidence trends from pre-pandemic years, a total of 538 700 new cases of cancer were expected in Germany in 2020 (Figure 1) – equivalent to 668 cases per 100 000 population. The age-standardised incidence rate (571 per 100 000) was expected to

**Figure 1. Cancer incidence among German women is higher than in the EU but is lower in men in 2020**



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.

be slightly above the EU average (569 per 100 000), albeit lower among men than the EU average (665 vs. 686) and higher among women (500 vs. 484) (Figure 1). Although men are more likely to be diagnosed with cancer, the difference between sexes was expected to be less marked in Germany (30 % higher in men) than in the EU (40 % higher in men). The burden of cancer in the population, measured by disability-adjusted life years (DALYs) lost per 100 000 population, was also expected to be higher in Germany than the EU average.

In women, breast cancer was expected to be the most common type, accounting for 28 % of new cases in Germany in 2020 (29 % in the EU). This was followed by colorectal (11 %) and lung cancer (10 %), skin melanoma (6 %) and uterus cancer (5 %). In the EU, colorectal cancer was expected to be more common, followed by lung and uterus cancer and non-Hodgkin lymphoma. Incidence rates for women were expected to be lower in Germany than the EU for colorectal and uterus cancer, but higher for lung and breast cancer and melanoma.

In men, prostate cancer was expected to be the most common type, accounting for 23 % of new cases, followed by lung (13 %), colorectal (11 %) and

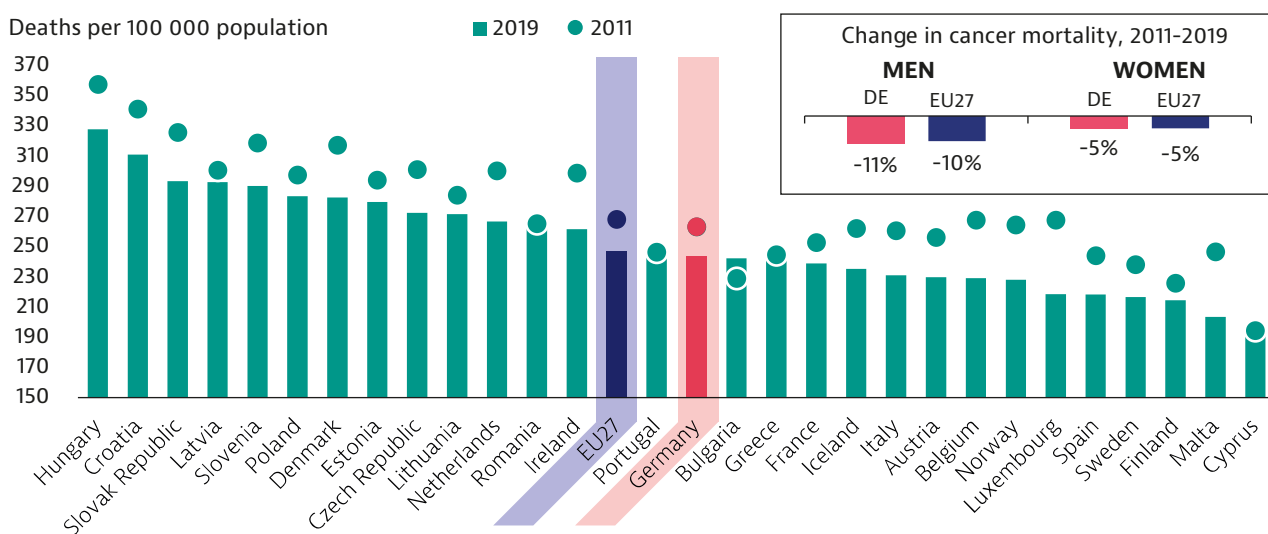
bladder cancer (9 %). This order matches that in the EU. Incidence rates were expected to be higher in Germany than the EU for bladder cancer and skin melanoma, but lower for prostate, lung and colorectal cancer.

In 2020, gastric (stomach) cancer was expected to constitute 3 % of new cancer cases in men and 2 % in women, while skin melanoma was expected to constitute 6 % of new cancer cases in both men and women. For paediatric cancer, the estimated age-standardised incidence rate in children under 15 years in 2020 was 19 per 100 000, which is higher than the EU average (15 per 100 000 population). In 2013, the estimated number of new rare cancer cases in Germany was 112 617.

### Overall cancer mortality in Germany is comparable to the EU average

Age-standardised mortality from cancer decreased in Germany between 2011 and 2019. As with the pattern across the EU, the reduction was more marked for men (-11 % in Germany compared to -10 % in the EU) than for women (-5 % in Germany and the EU) (Figure 2).

**Figure 2. Mortality from cancer in Germany decreased at a pace comparable to the EU**



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

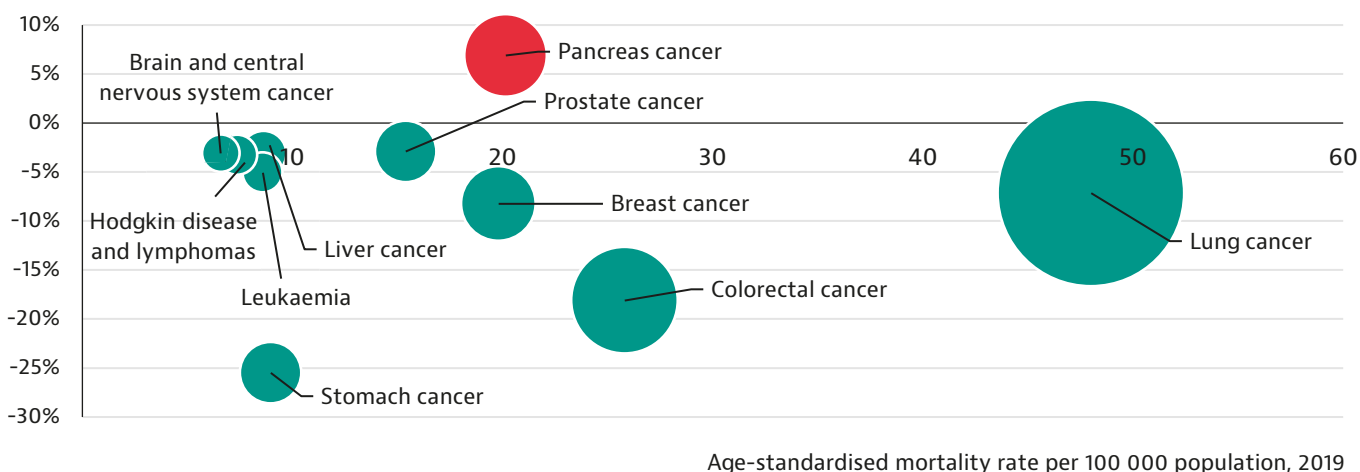
Reductions in mortality from colorectal and lung cancer, followed by stomach cancer, were the largest single contributors to the overall decrease. Despite this, lung and colorectal cancer remain the two types with the highest mortality, followed by pancreatic and breast cancer (Figure 3). Pancreatic cancer was the only common cancer type for which mortality increased in 2011-2019 (+7 %). Studies from the late 1990s and 2000s found that mortality

was markedly higher – including from colorectal, lung and stomach cancers – in population groups with low socioeconomic status (Lampert, Hoebel & Kroll, 2019). However, no recent data about inequalities in cancer mortality are available. A study of socio-economic patterns in cancer incidence, using more recent registry data, showed varying patterns between women and men and across different cancer sites (Hoebel et al., 2018).



**Figure 3. Mortality rates remain the highest for lung and colorectal cancer types**

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.

Between 2000 and 2019, potential years of life lost due to malignant neoplasms saw a relative decrease of 28 %, and accounted for 1 208 years of life lost among 100 000 people aged up to 75 years in 2019. The relative decrease was somewhat larger among men (33 %) than women (21 %), with 1 306 and 1 117 years of life lost in 2019, respectively.

### The National Cancer Plan has guided most aspects of German cancer policy since 2008

The National Cancer Plan, initially formulated in 2008, is the overarching cancer policy framework in Germany. It covers all relevant stakeholders in the fragmented health system and lays out 13 strategic objectives supported by around 40 sub-targets in four fields of action, aligned with the Europe's Beating Cancer Plan (European Commission, 2021): screening and early detection; structural improvement of oncological care and quality assurance; access to treatment; and patient centredness (Bundesgesundheitsministerium, 2020). In January 2019, the Federal Ministry of Education and Research launched the National Decade against Cancer initiative<sup>1</sup>. The overall objective is to strengthen patient-centred cancer research, through increased involvement of patients in the preparation, selection and implementation of research. Cancer prevention and early detection are a specific focus. Also, research will receive more targeted support, and innovations will be made available to patients faster.

<sup>1</sup> See [https://www.dekade-gegen-krebs.de/en/home/home\\_node.html](https://www.dekade-gegen-krebs.de/en/home/home_node.html)

### A wide range of stakeholders in the health system contribute to action against cancer

Responsibilities for health policy in Germany, including cancer policy, are shared between the federal government, governments of the 16 federal states and social health insurance (SHI). The main role of the Federal Ministry of Health is regulation of the health system, including SHI and health care providers, through introducing legislation and issuing decrees and administrative regulations. Legislation has been enacted at the federal level since 2010 to advance cancer policy, including laws on screening, the nationwide establishment of clinical cancer registries by the federal states, standardisation of community-based psycho-oncological care and an expansion of hospice and palliative care. However, responsibilities are fragmented even at the federal level: for example, research falls within the remit of the Federal Ministry of Education and Research, and prevention of work-related cancer as well as rehabilitation are partly within the remit of the Federal Ministry of Labour and Social Affairs.

Prevention is primarily a responsibility of the federal states, but SHI and long-term care insurance funds contribute funding. The federal Prevention Act was passed in 2015 to strengthen co-operation between SHI Funds, Federal States, regional and local authorities through the National Prevention Conference, which defines

a national prevention strategy and oversees its implementation. Expansion of the Prevention Act and creation of a national prevention plan, including a package of specific measures, are goals of the federal government.

In addition, several other stakeholders in the German health system play an important role in cancer policy. For instance, development of the National Cancer Plan involved approximately 25 stakeholder organisations, various specialist medical associations and patient representatives. The Federal Joint Committee (G-BA) brings together

self-governing bodies of SHI, physicians, dentists and hospitals, and is the supreme decision-making body for these at the national level. It is a legal requirement that patient representatives and carers associations are involved in development of G-BA directives. The national health technology assessment (HTA) agency also regularly involves patient organisations, and its Board of Trustees is chaired by a patient representative. Patients are also formally involved in development of clinical guidelines by medical societies.

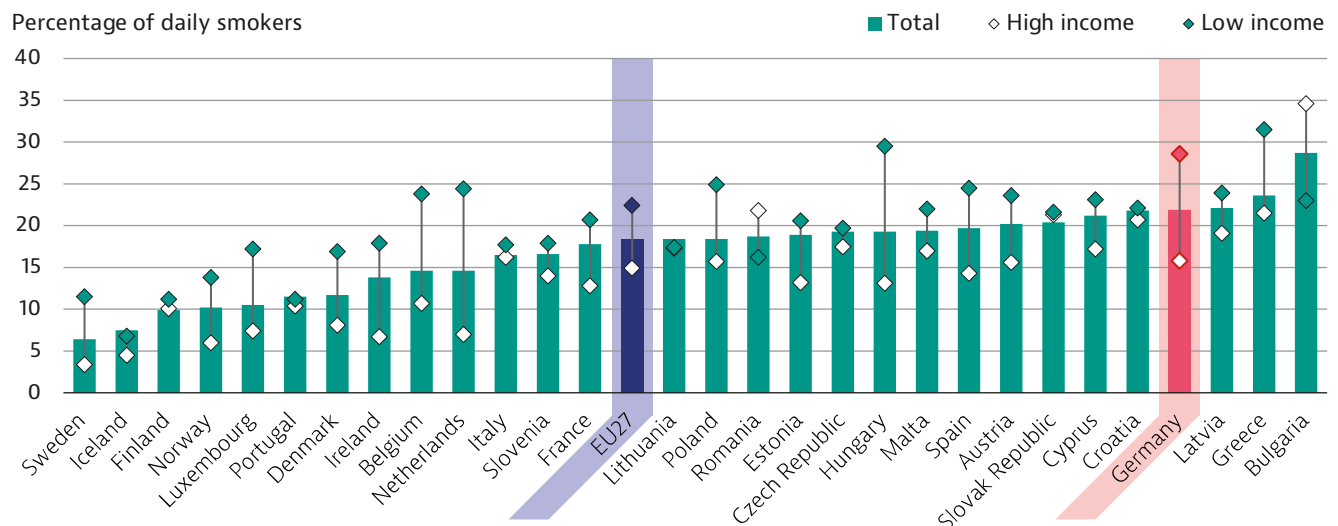
### 3. Risk factors and prevention policies

#### Smoking is more prevalent in Germany than in most EU countries

Germany had among the highest proportions of daily cigarette smokers in the EU in 2019, at 22 % compared to 18 % EU average. Although the proportion exceeds the EU average across all population groups, smoking is particularly common

in Germany among the working-age population (26 % vs. 21 % in the EU) and among men (25 % vs. 22 %). Germany also has more marked education and income gradients: prevalence of daily smoking is higher among people with low (25 %) than high (14 %) education levels and among those on low (29 %) than high (16 %) incomes (Figure 4).

**Figure 4. Daily smoking rates and disparities between income groups are above the EU average**



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

#### Alcohol consumption is also common in Germany

Germans aged 15 years and over consumed 10.6 litres of pure alcohol per capita in 2020 – slightly more than the EU average of 9.8 litres. Hazardous

alcohol consumption was also more common in Germany (4.6 % of the population report being hazardous drinkers vs. 2.7 % in the EU) and among German men than women (4.9 % vs. 4.3 %)<sup>2</sup>. This is reflected in a markedly higher incidence of cancer

<sup>2</sup> According to the definition of the European Health Interview Survey (EHIS): consumption of more than 20 grams pure alcohol daily for women and more than 40 grams daily for men.

attributable to alcohol in men (15.1 per 100 000 vs. 8.9 per 100 000 in women). However, this rate is below the EU average among men (17.9 per 100 000), while higher than the EU average among women (7.7 per 100 000). In contrast to many other behavioural risk factors, hazardous alcohol drinking is more common among population groups with higher (4.9 %) than lower (3.8 %) education levels; among those on higher (5.8 %) than lower incomes (4.4 %); and among those living in urban (5.1 %) than rural (3.9 %) areas. Across all these population groups, the share of hazardous alcohol drinkers is higher in Germany than across the EU.

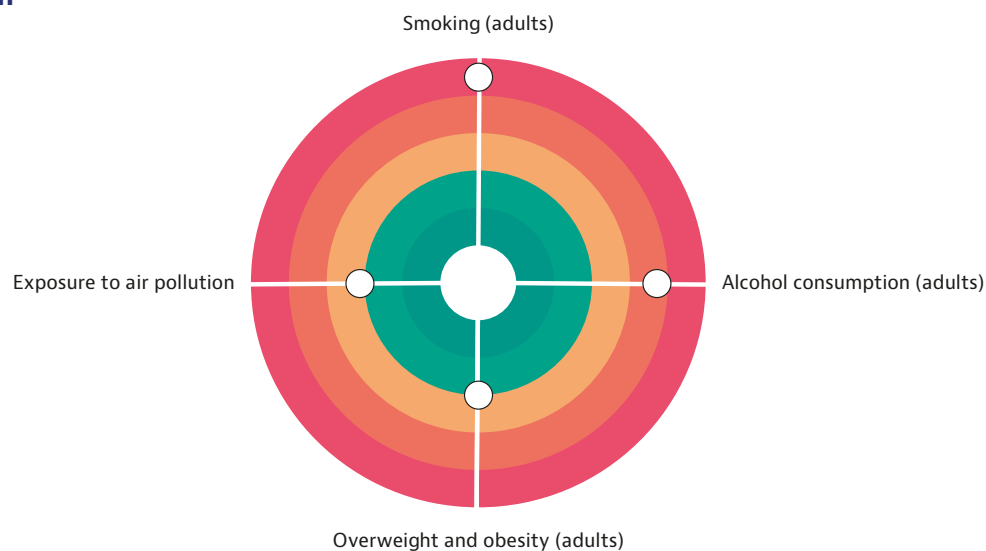
### Overweight and obesity are on the rise, and particularly affect less privileged population groups

While Germany fares well on overweight and obesity relative to other EU countries (Figure 5), overweight and obesity are increasing in Germany, as across the EU. Between 2014 and 2019, the share of German people who were overweight or obese increased from 51 % to 54 %, which was slightly above the EU average in both years (50 % and 53 % respectively). More than 60 % of men were overweight or obese in 2019 compared to

47 % of women, although the increase over time was somewhat higher for women. The increase since 2014 was particularly driven by people of working age and with lower education levels. More than 55 % of people aged 15-64 years with lower education levels were overweight or obese in 2019 (matching the EU average), compared to only 44 % in 2014.

While unhealthy lifestyles – including poor diet and lack of physical activity – appear to be less of an issue in Germany than many EU countries, they may be an increasing problem in some segments of the population. For instance, while the proportion of the population that spent at least 150 minutes per week on health-enhancing physical activity increased slightly in the German population as a whole (from 48 % to 49 % between 2014 and 2019) and was above the EU average (33 % in 2019), it declined between 2014 and 2019 in people of retirement age (from 43 % to 37 %) and those with low education levels (from 44 % to 42 %). Also, daily fruit and vegetable consumption were below the EU averages, but increased in Germany between 2014 and 2019 – although at a faster pace among people with high education levels.

**Figure 5. Germany performs better than other EU countries on overweight, obesity and exposure to air pollution**



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

*Sources: OECD calculations based on the European Health Interview Survey (EHIS) 2019 for smoking and overweight/obesity rates, OECD Health Statistics 2022 and WHO Global Information System on Alcohol and Health (GISAH) for alcohol consumption (2020) and Eurostat for air pollution (2019).*

### Exposure to air pollution is lower in Germany than in the EU

Data suggest that exposure to air pollution and hazardous chemicals is below the EU average

but may particularly affect certain sub-groups. For example, a larger proportion of working-age males may be exposed to hazardous chemicals in Germany than in the EU as a whole, an issue that concerns in particular men who work in



high-skilled manual jobs. Rules and regulations set by the Federal Ministry of Labour and Social Affairs aim to protect workers from health risks and in particular work-related cancer.

In 2019, exposure to  $PM_{10}^3$  in Germany reached  $16 \mu\text{g}/\text{m}^3$ , which is lower than the EU average ( $21 \mu\text{g}/\text{m}^3$ ). Germany also had a lower concentration of  $PM_{2.5}$  than in the EU ( $11 \mu\text{g}/\text{m}^3$  vs.  $13 \mu\text{g}/\text{m}^3$ ). According to the Institute for Health Metrics and Evaluation, ozone and  $PM_{2.5}$  exposure accounted for an estimated 3 % of all deaths in Germany in 2019, a rate lower than the average across the EU (4%).

### Cancer prevention is part of a broader prevention of non-communicable diseases

Prevention of cancer is part of a broader approach to prevention of non-communicable diseases (NCDs), which targets common lifestyle-related risk factors such as physical inactivity, unhealthy diet, smoking and alcohol consumption. As a result, the National Cancer Plan (NKP) does not cover primary prevention. In 2020, 3.2 % of Germany's health spending was on prevention, which is slightly lower than the EU average (3.4 %).

A national action plan launched in 2008 promotes healthy diets and physical activity with the aim of reducing the related burden of disease. This includes evidence-based recommendations for the

population, which also comprise specific initiatives. An initiative for prevention of childhood obesity was also introduced by the Federal Ministry of Health in 2015.

Prevention and health promotion for socially disadvantaged groups are coordinated by the National Co-operation Network for Equity in Health, established in 2003 by the Federal Centre for Health Education. The Network involves 75 partners, with a shared goal of documenting and publishing prevention projects, measures and programmes focused on such groups. Its website provides information on more than 2 000 initiatives, including several on cancer prevention. It also aims to promote quality of prevention and health promotion initiatives targeted at specific groups.

Cancer-specific activities complement broader NCD prevention policies. Examples include information and counselling provided by the German Cancer Society in each federal state, and vaccination against infections that are risk factors for cancer. Human papillomavirus (HPV) and hepatitis B vaccinations are fully covered by SHI for children and adolescents (Box 1). Targeted and group-specific information about HPV vaccination is offered through various channels.

#### Box 1. HPV and hepatitis B vaccination

Estimates show that 47 % of 15-year-old girls in Germany were fully vaccinated against HPV in 2019, which is below the EU average (59 %) and much lower than in many EU countries. Although age-standardised incidence of cervical cancer and mortality are slightly below the EU average, they are both higher than in many EU countries.

The Standing Committee on Vaccination recommends basic HPV immunisation with two doses for children and adolescents aged 9-14 years, or with three doses for adolescents who receive basic immunisation at 15-17 years. Full coverage of vaccination by SHI, however, generally extends to all doses required to complete the basic immunisation cycle up to the age of 18 years. HPV vaccination

Sources: RKI, 2022a & 2022b; RKI 2021; WHO, 2022.

was originally only recommended for girls; the recommendation was extended to boys in 2018, but by the end of 2019, uptake among 15-year-old boys remained as low as 5 %.

According to WHO, 87 % of 1-year-olds in Germany were vaccinated against hepatitis B in 2020, which is below the EU average (94 %). The Standing Committee on Vaccination recommends vaccination with a total of three doses at 2, 4 and 11 months of age respectively. Basic immunisation catch-up is recommended up to the age of 17 years. Subsequent boosters or a primary vaccination schedule are only recommended for at-risk populations and people with specified indications, based on antibody tests.

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

## 4. Early detection

### Germany has national screening programmes for breast, colorectal and cervical cancer

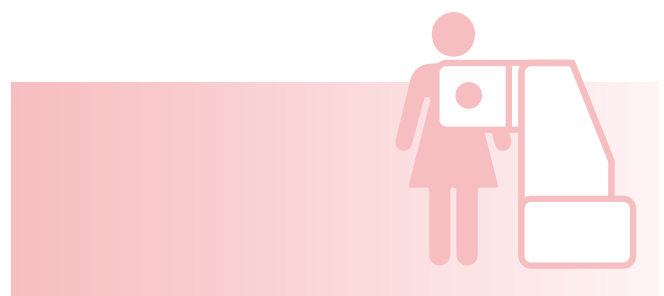
National population-based screening programmes that adhere to EU guidelines are in place in Germany for breast, colorectal and cervical cancer. The breast cancer screening programme was implemented in 2005 and reached nationwide coverage in 2009, followed by colorectal and cervical cancer programmes in mid-2019 and early 2020. These were introduced under the Cancer Screening and Registries Act, which entered into force in 2013 and aimed to transform opportunistic screening for cervical and colorectal cancer into national programmes in line with EU guidelines as part of a broader legal framework. Adoption of national screening programmes for colorectal and cervical cancer was one of three goals related to early detection in the National Cancer Plan; the others target improving information about screening and uptake in the population and formal evaluation of effectiveness of screening programmes using registry data (Bundesgesundheitsministerium, 2020). Discussions are ongoing about introducing lung cancer screening with low-dose computed tomography (CT).

While the Federal Ministry of Health provides the legal framework for early detection, technical specifications and execution of the cancer screening programmes fall within the remit of SHI and health care providers, overseen by the G-BA. Various stakeholders publish information about cancer screening to help people access services, and the G-BA publishes information on all screening programmes offered by SHI. The latest version of its comprehensive guideline for early detection programmes was published in 2020 and covers not only the three national screening programmes but also early detection of prostate and skin cancers, including melanoma (G-BA, 2020). The G-BA decided against general screening for prostate cancer in 2020, based on an evaluation by the national HTA agency, which suggested that it might result in a high rate of false positives and potential patient harm from inappropriate treatment. The system of Occupational Safety and Health also contributes to the prevention and early detection of cancers caused by exposure at the workplace.

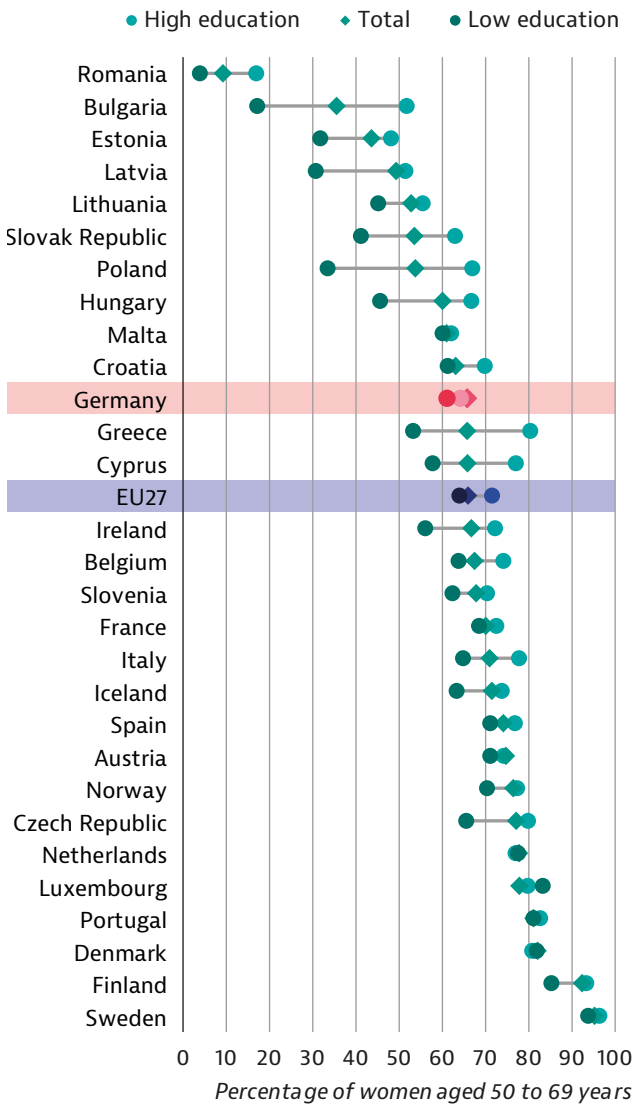
### Breast cancer screening rates are similar to the EU average

In the latest evaluation of the breast cancer screening programme in 2021, it was shown to detect 7.7 new tumours per 1 000 women screened for the first time and 5.6 new tumours per 1 000 women who had already been screened, of which 79 % were detected at a stage with favourable prognosis. Effects on mortality have not yet been analysed, but the evaluation concluded that the programme is effective and achieves most EU guideline targets, except for uptake (Käab-Sanyal & Hand, 2021).

According to national data, the uptake of the national breast cancer screening program was 50 % in 2019 among the target group of women aged 50-69 years. However, according to the 2019 EHIS, 65.7 % of women aged 50 to 69 years in Germany reported having had a mammogram in the prior two years, compared to 65.9 % across the EU. Income and education gradients were smaller than the EU average, although the disparity between women on high and low incomes was marked. Uptake was lower among women on low (58.2 %) compared to high (69.0 %) incomes, and among those with low (61.1 %) compared to high (64.2 %) education levels (Figure 6). Discussions are ongoing about extending the age limits of the target group for screening.



**Figure 6. Education gradients in breast cancer screening rates are smaller than the EU averages**



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.

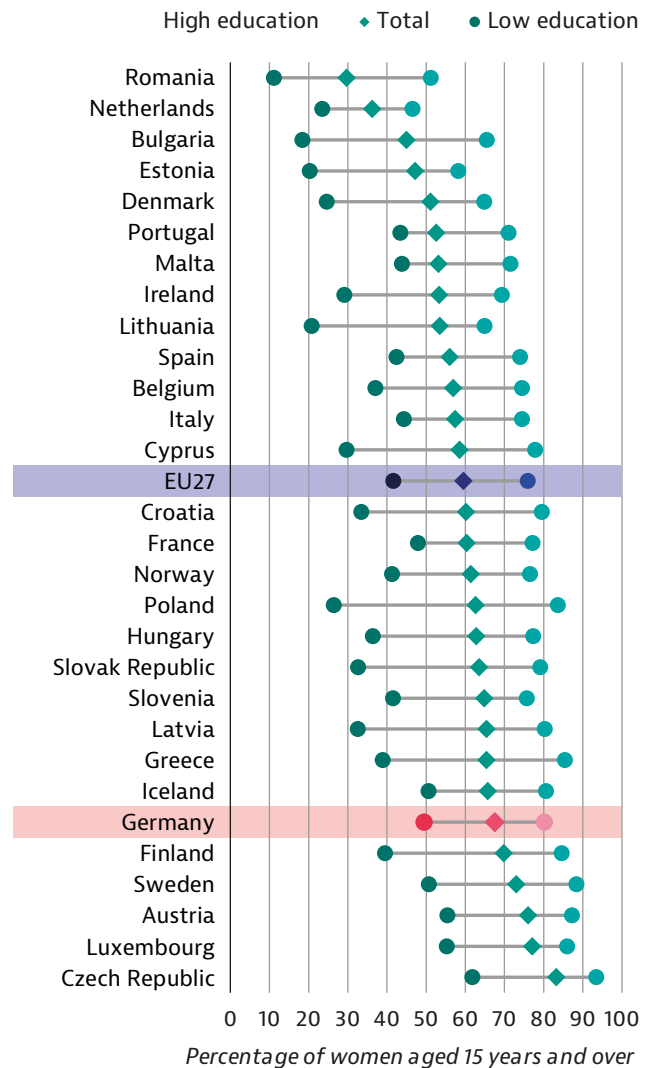
**Screening rates for cervical and colorectal cancer are high**

Given their recent implementation, no evaluations of the other cancer screening programmes have yet been published. According to the G-BA guidelines and the National Cancer Plan, screening programmes will be evaluated on adherence to guidelines, uptake and outcomes including incidence and mortality (Bundesgesundheitsministerium, 2011).

Data from 2019 (before implementation of the national programmes) suggest that uptake of screening for cervical and colorectal cancer were above the EU averages. Among German women aged 15 years and over, 68 % reported having had a smear test in the prior three years, compared to 60 % across the EU. As with the pattern in the EU, screening was more common among women

aged 15-64 years, and disparities by education and income were marked (Figure 7), although urban/rural disparities were small. In 2019, more women with high (80 %) than low (50 %) education levels, and on high (79 %) than low (57 %) incomes reported having had a smear test in the prior three years.

**Figure 7. Education gradients in cervical cancer screening rates are marked and similar to the EU average**



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.

Germany has among the highest uptake of colorectal cancer screening in the EU: 43.8 % of the population aged 50 to 74 years reported having screening within two prior years in 2019 (vs. the EU average of 33.3 %). Women are more likely to be screened than men, as are people on high incomes. Income gradients are less marked in Germany than across the EU on average while the disparity between sexes is wider than the EU average.

# 5. Cancer care performance

## 5.1 Accessibility

### Access to cancer care is among the strategic objectives of the National Cancer Plan

The National Cancer Plan strategic objectives envisage that all cancer patients should receive high-quality care, regardless of age, sex, ethnic background, place of residence and insurance status; that care should be integrated across sectors, including self-help; and that needs-based psychological support should be available (Bundesgesundheitsministerium, 2020). SHI covers about 90 % of German people; this provides equal access to prevention and treatment, regardless of income, insurance contributions, place of residence and risk profile. Most of the rest of the population is covered by private insurance. Long-term care is financed through a separate social insurance scheme, and rehabilitation is partly funded by statutory pension insurance. Work-related cancer prevention as well as treatment and rehabilitation of recognized occupational diseases, including cancer, are covered by the German Social Accident Insurance.

Cancer services are generally free of charge at the point of use. As part of the provision of outpatient care, the state-level associations of SHI doctors (Kassenärztliche Vereinigungen) are required to operate so-called appointment service centres (Terminservicestellen) that arrange specialist appointments. As a rule, the waiting time may not exceed four weeks. According to the EU-SILC survey, unmet medical needs for reasons related to finances, geographical accessibility or waiting lists have declined in Germany in the past decade and been close to zero since 2016, while 1.8 % of the population of the EU was estimated to forgo medical examinations for these reasons in 2020. Differences in unmet medical needs are low across sexes and income groups.

### Accessibility of cancer care is generally considered good in Germany

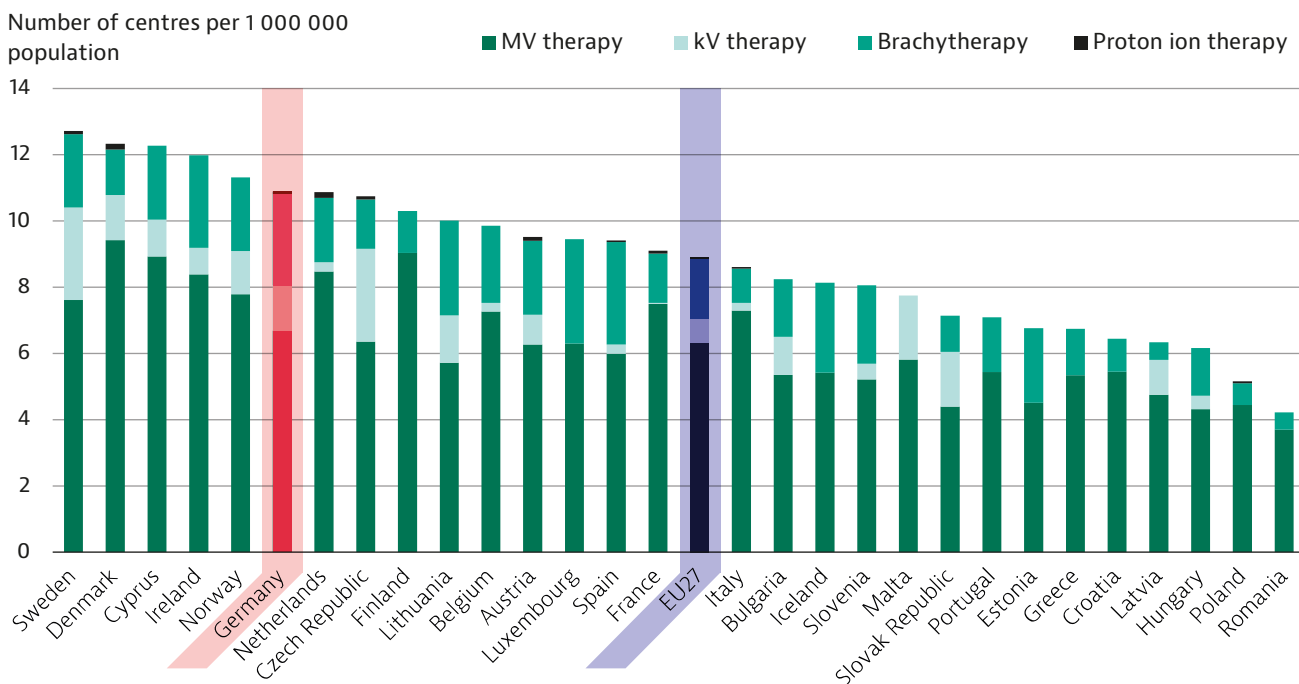
Although internationally comparable data on physical accessibility are limited, the German health system continues to be hospital-centred, which may be an advantage in ensuring accessibility of specialised cancer treatment. Inpatient case rates per 100 000 population are

higher than in any other EU country for all cancer types, although this may be explained in part by a volume of day cases markedly lower than the EU average. The numbers of CT and magnetic resonance imaging (MRI) scanners per 100 000 population are among the highest in the EU, and the density of particle therapy centres is also above the EU average (Figure 8). The number of oncologists (3.54 per 100 000 population in 2015) is close to the midpoint of the range across EU countries. Cancer centres provide specialised treatment across three tiers of certified hospitals (see Section 5.2).

Germany is generally considered to be among the EU countries with the best access to new medicines in the outpatient sector, including oncology medicines. New products are covered immediately by SHI by virtue of regulatory approval and, for the first year from approval, without price regulation. As a result, the pharmaceutical industry often launches products first in Germany. From the second year after launch, prices are regulated through internal reference pricing or SHI negotiations based on a formal assessment of added therapeutic benefit by the G-BA and the national HTA agency, as defined in the 2011 law reforming the pharmaceutical market (Wenzl & Paris, 2018). Available data generally suggest no access problems resulting from an absence of SHI coverage (Chapman, Paris & Lopert, 2020; Moye-Holz & Vogler, 2022). Pricing and coverage of medicines in the inpatient sector are largely unregulated, however, and little information is publicly available.

### Improvements in end-of-life care, rehabilitation and health literacy have been recent priorities

Accessibility of rehabilitation and end-of-life care were identified as gaps at the inception of the National Cancer Plan, and a specific objective was added to cover these. Palliative services are provided in both inpatient and outpatient settings, and are covered by SHI if deemed medically necessary. Specialised outpatient palliative services are available for terminally ill patients. The Hospice Palliative Care Act of 2015, is considered a milestone in the expansion of hospice and palliative care. Its main objectives were to improve and strengthen access to hospice

**Figure 8. Germany has an above-average density of particle therapy centres**

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

and palliative care in all settings; to promote co-operation between professional and voluntary services across medical, nursing, hospice and psychosocial professions in networks; and to have SHI Funds provide customised advice and support to patients and families. Implementation of the law has significantly expanded availability of outpatient and inpatient hospice and palliative care services and strengthened networks among these services, which now provide care and support in line with individual needs. The most specialised rehabilitation is provided by oncological rehabilitation clinics with interdisciplinary teams of professionals, which can include psychological support. Rehabilitation services can be prescribed by family doctors or cancer specialists, and are covered by SHI, pension and social accident insurance for patients deemed to have a medical need and who are fit for rehabilitation once acute treatment has been completed. Federal legislation from 2021 doubled SHI funding for and expanded availability of psychological support for cancer patients.

Health literacy and patient centredness are cross-cutting topics of the National Cancer Plan and the National Decade against Cancer. Informed decision making has become a central theme in recent policies, leading to the creation of the Alliance for Health Competence in 2017. This brings together all relevant stakeholders in the health system, including the G-BA, SHI and physician

associations, under a common commitment to develop projects that promote health literacy.

The Patients' Rights Act of 2013 clarified patient rights and improved protection in relation to health care providers. Under the new rules, providers have a duty to supply information and clarifications to patients and to document treatment failures, and patients have a right to access their own records. Health-related information is available to all through the national health portal, and a separate website with health information in 40 languages is available for migrants and other people who do not read German. Cancer-specific information is available on various sites, including the National Cancer Information Service and the Cancer Information Network provided by the German Cancer Aid Foundation.

## 5.2 Quality

### Survival outcomes in cancer care have improved in Germany

Five-year net survival, a marker of care quality, increased or remained constant in Germany between 2004 and 2014 across nearly all of the most common cancer types. Although gains were generally less than those across the EU, survival remains above the EU average because of higher baselines. For people diagnosed between 2010 and 2014, the highest survival rates are now achieved in prostate cancer (92 % vs. an EU average of

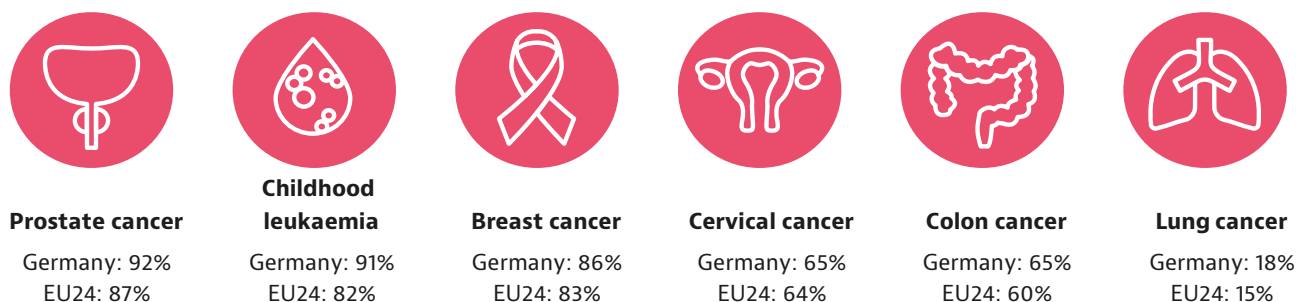


87 %) and childhood leukaemia (91 % vs. the EU average 82 %) (Figure 9). Survival is also high for breast cancer (86 % vs. an EU average of 83 %), but remains poor for lung cancer (18 % vs. 15 % in the EU).

Notable increases in survival were achieved in oesophagus cancer (+4.2 percentage points vs. +4.5

in the EU) and colon cancer (+2.8 vs. +7.6 in the EU), while cervical and colorectal cancer survival remained virtually constant. For people with rare cancers, five-year survival is now at 51 %, which is slightly above the EU average of 49 % but remains below the top-performing countries in the EU (59 % in Iceland and 54 % in Finland, Italy and Norway).

**Figure 9. Five-year net survival is above the EU average in Germany for most cancers**



*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.*

### Cancer treatment is provided in a three-tier system and subject to national guidelines

Since 2003, the German Cancer Society has established a nationwide tiered certification system for cancer centres. Structural improvement of oncological care and quality assurance is also one of the four focal areas of the National Cancer Plan, supported by 6 of the 13 strategic objectives. Although participation in the certification system is voluntary, approximately 60 % of annual incident cancer cases are now treated in certified centres, and this approach of centralising care is supported by evidence of improved clinical outcomes. Minimum volume requirements – making hospital remuneration for cancer surgery contingent on having performed a minimum number of procedures in the prior year – also contribute to centralisation.

Care is provided across three tiers of hospitals that have oncology specialisations and are certified by the German Cancer Society and German Cancer Aid Foundation. To gain and maintain certification, centres are audited based on uniform and tumor-specific quality criteria that include adherence to national clinical guidelines and case volume targets. There are 15 certified comprehensive cancer centres, which constitute the highest tier and provide care for a broad spectrum of cancer types across all clinical aspects. They also lead research and teaching. Certified oncology centres (currently 141) constitute the second tier and provide care across several

cancer types and specialties. At the lowest tier, 1 130 certified organ cancer centres specialise in one cancer type or specialty. Centres across all three tiers constitute hubs in regional networks, which also comprise office-based physicians that support care on an outpatient basis.

Adoption of the National Cancer Plan also catalysed development of clinical guidelines based on robust international evidence. The currently 32 clinical guidelines in oncology are applied by specialised cancer centres in agreement with SHI, providing quality standards for all major cancer types across early detection, diagnosis, therapy, follow-up and palliative care. The National Guideline Programme of Oncology formulated and maintains guidelines. It was launched in 2008 by the Association of Scientific Medical Societies, which brings together various specialist societies, the German Cancer Society and German Cancer Aid Foundation. Key principles in defining guidelines include stakeholder and patient involvement; editorial independence; systematic search, selection and appraisal of the evidence; and formal consensus-finding processes. In addition, there are currently 28 patient guidelines in an “easy-to-read” format, which are also part of the National Guideline Programme.

Care of paediatric cancer patients is also centralised in specialised oncological centres, which operate as a network overseen by the Society for Paediatric Oncology and Haematology. A separate registry for children with cancer with

near-universal population coverage has been in place since the 1980s. This facilitates follow-up into adulthood and thus research into long-term effects, secondary tumours and long-term survival. As a result of improvements in diagnostics and in multimodal therapy, survival for children with cancer increased from 67 % in the early 1980s to 87 % for girls and 86 % for boys diagnosed between 2009 and 2018 who are part of the paediatric cancer registry.

Comprehensive cancer centres and certified oncology centres treat patients with rare cancers. These are typically part of European reference networks, and participate in clinical studies. Epidemiological and survival data about a number of rare cancers are provided in publications based on data provided by the Centre for Cancer Registry Data. A model project will become operational for rare diseases and cancer in 2024, which aims to use genome sequencing for personalised and comprehensive diagnosis and finding of appropriate therapy. Clinical and genomic data will be linked in a secure data infrastructure in compliance with the Genetic Diagnostics Act and data protection regulations.

### **The use of patient-reported outcome measures is still limited**

Although a national cancer dataset is maintained by the Centre for Cancer Registry Data (ZfKD) at the Robert Koch Institute – the federal government agency for disease control and prevention – use of data, including patient-reported outcome and experience measures (PROMs and PREMs) for quality assurance and improvement, is limited. At the hospital level, certification audits include measurement of waiting times, inclusion of supportive professional patient care groups (social workers, psycho-oncologists, patient representatives and so on) and a number of PROMs for treatment of specified cancers, including breast, prostate and colorectal cancer. The results are used for ongoing quality improvement processes. These PROMs are also elicited and analysed in ongoing scientific studies. The German Cancer Society publishes annual anonymised reports about the results of these audits.

### **Increasing interoperability and use of cancer datasets is a priority**

Legislation currently tasks federal states with operation of cancer registries from 2020. Under the Cancer Screening and Registries Act of 2013, some state-level data covering the entire patient pathway from diagnosis through treatment to recovery or death are transferred to the ZfKD, where they

are combined into the national dataset, quality checked and analysed. In collaboration with the Association of Population-Based Cancer Registries, ZfKD publishes periodic reports about cancer epidemiology and survival, and data can be made available for scientific research.

Increased linkage of cancer and genomic data and improved interoperability of oncological datasets and information technology infrastructure are priority areas, in particular in the National Cancer Plan and the National Decade against Cancer. The Unified Collection and Merging of Cancer Registry Data Act of 2021 aims to improve use of data for quality control and research. The current registry dataset will be supplemented from 2023 with clinical data – in particular about therapies used and the course of the disease. In addition, the permissible data lag will be reduced from two years to one. In a second stage, ZfKD and other stakeholders in care and research are collaborating to develop a concept to establish a platform for accelerated data access and linking cancer registry data with other datasets. In September 2022, the stakeholders initiated this collaborative project, which is funded by the Federal Ministry of Health.

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

### **Per capita expenditure on cancer care is higher in Germany than in any other EU country**

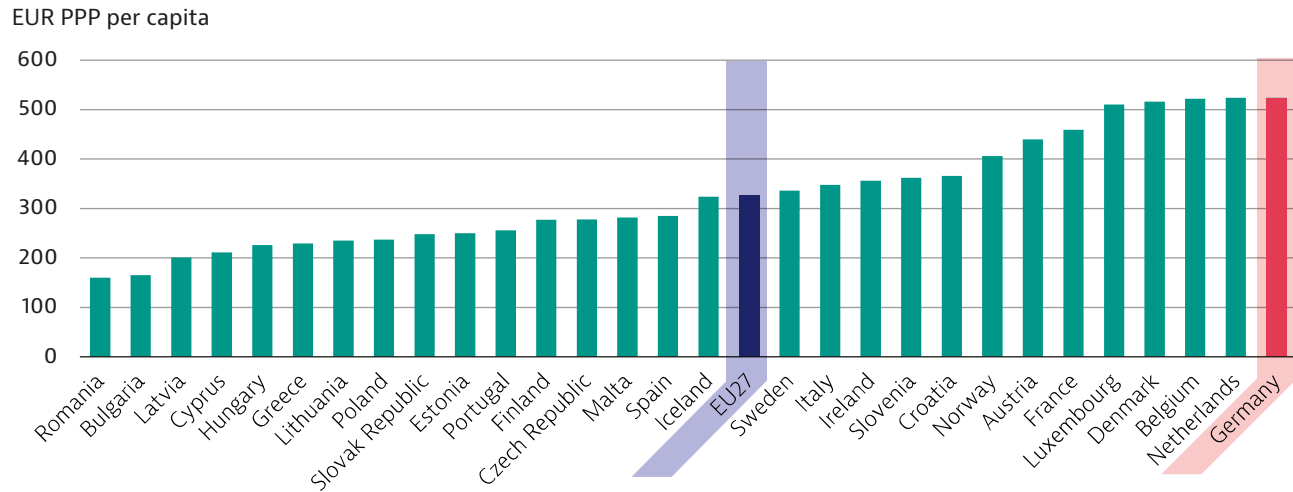
A basic principle of German SHI is that it covers medically necessary services to detect and cure illness, prevent its aggravation or alleviate symptoms, including for cancer. However, good accessibility and performance of cancer-related services come at a high cost to the health system. Fragmented responsibilities between the federal government, state governments and other stakeholders – notably SHI and health care providers – make systemic cost containment difficult. Germany has the highest health care expenditure per capita among EU countries, both in absolute terms and relative to GDP.

In 2018, the total cost of cancer in Germany was EUR 524 per capita, adjusted for purchasing power parity (PPP). Alongside the Netherlands, this is the highest cost among all EU countries (the EU average was EUR 326) (Figure 10). Direct health care expenditure represents nearly 55 % of the total cost (vs. 49 % across the EU), including 16 % for cancer medicines (vs. 15 % across the EU). Although comparable to the EU average in terms of share of total cost, Germany has among the highest expenditure for cancer medicines, which may be related to broad coverage of medicines and absence of price regulation in the first year from approval

(see Section 5.1). Although data are limited, prices may be higher than in many countries: in a recent international comparison, Germany was found to have among the highest prices of cancer medicines in the EU, even after adjusting for PPP (Moye-Holz & Vogler, 2022). On the other hand, the shares of costs

attributed to informal care (11 % vs. 12 % in the EU) and morbidity-related productivity losses (9 % vs. 13 % in the EU) are slightly below the EU averages, while productivity losses from premature mortality account for 25 % of total costs in both Germany and the EU.

**Figure 10. The cost of cancer is higher in Germany than in any other EU countries**



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

### Health technology assessment is applied for all new medicines

Provider payment and cost containment mechanisms are the same for cancer as other disease areas. Coverage of outpatient services and prescription medicines are subject to decisions by SHI, with specialist services mainly paid fee-for-service based on the uniform value scale – the national fee schedule determined by a committee of representatives from the National Association of SHI Physicians and the National Association of SHI Funds. Inpatient treatment is paid by SHI based on national diagnosis-related groups, while the federal states finance capital investment and infrastructure. Add-on payments beyond the flat fees that cover entire treatment episodes are made for certain high-cost medicines. HTA is compulsory within the first year of market launch for all medicines with new active ingredients, or a new combination of existing active ingredients, and for medicines marketed for a new indication – except for products whose annual SHI budget impact is expected to be below EUR 1 million and for orphan medicines with an annual budget impact below EUR 50 million. From the second year from market launch, prices of medicines for which HTA ascertained added therapeutic benefit are negotiated between the marketing authorisation holder and the National Association of SHI Funds; medicines with no added

benefit are clustered in internal reference pricing groups (Wenzl & Paris, 2018).

## 5.4 COVID-19 and cancer: building resilience

### A Cancer Task Force monitored impacts of COVID 19 on cancer care

The COVID 19 pandemic, which led to significant restrictions to mobility and social life in Germany from March 2020, affected cancer detection and treatment in two main ways. First, patients with cancer were at higher risk of death from COVID 19, with particularly high mortality in people with recently diagnosed, progressive or very advanced cancer, although incidence of COVID 19 was not found to be higher among people with cancer than the general population (ZfKD & GEKD, 2021). This is also related to shared risk factors between the two diseases – in particular, advanced aged and comorbidities. Second, a reduction in the volumes of oncological services (including screening, surgery and diagnostics and psychosocial care) was reported, particularly in the early phases of the pandemic. This was related to concerns about increased risk of infection, particularly before the availability of COVID-19 vaccines, and a temporary shifting of capacities towards care for COVID-19 patients, which resulted in lower utilisation of non-COVID-19-related health services.

However, the overall effect on provision of cancer care remained limited. Above-average hospital capacity and a strong structural health system framework may have helped to attenuate the effect of COVID 19.

While no targeted real-time monitoring of data was done to measure the impact of the pandemic on the cancer care pathway, the German Cancer Society and German Cancer Aid Foundation initiated a joint Cancer Task Force at the early stages to monitor impacts through periodic interviews with cancer centres. To maintain accessibility of care while the most stringent restrictions to mobility and social contacts were in place, availability of telemedicine services was expanded to maintain contacts between patients and health professionals. Together with measures to curb COVID 19 transmission, communication and raising awareness about the risks of postponing necessary medical appointments were major focuses of policymakers during the pandemic.

### The first and second waves of the pandemic had the most significant effect on cancer services

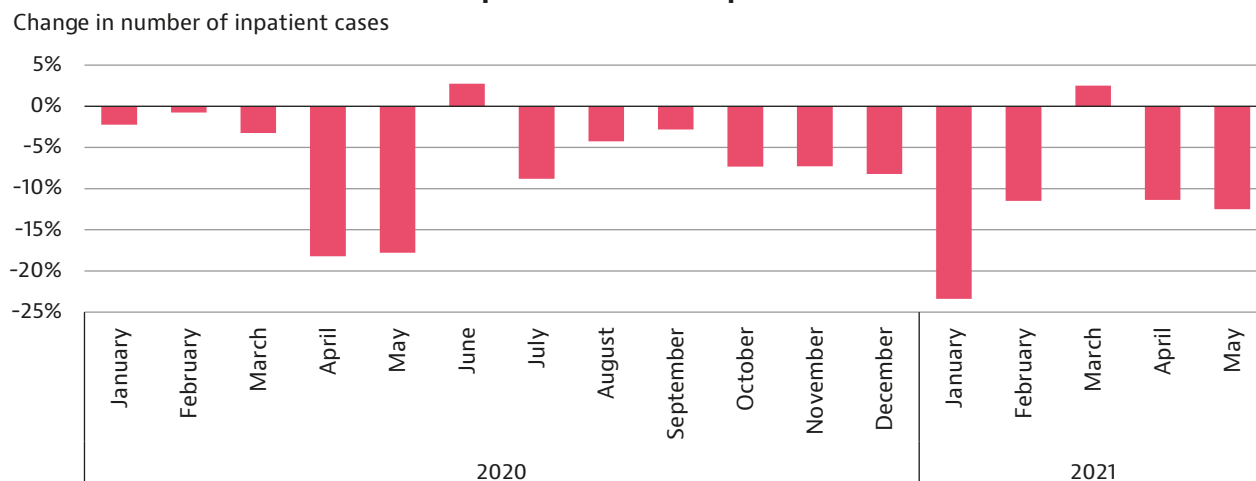
In general, the effects on utilisation of health services were strongest during the first wave of COVID 19 in April and May 2020; those after the second wave of infection from November 2020 to January 2021 were less marked (ZfKD & GEKD, 2021). Studies that evaluated the effect of the pandemic on the volume of oncological services found moderate impacts on diagnostic and therapeutic procedures. Effects were stronger in hospitals than services offered by office-based physicians.

National screening programmes were largely halted between late March and early May 2020, so the number of tests plunged during this period, but it rebounded quickly to levels of the prior year. For example, a survey conducted in July 2020 found that 40 % of respondents with a pending cancer screening appointment had postponed the test because of COVID-19 (Heidemann et al., 2022). However, the yearly decrease in breast cancer screenings between 2019 and 2020 remained around -10 % (ZfKD & GEKD, 2021). Another study focusing on colorectal cancer found that from March 2020 to May 2021 the number of diagnostic colonoscopies decreased by approximately 15 % year-on-year in hospitals and by 3 % in the physician office setting, while the number of colonoscopies for early detection continued to increase between 2019 and 2020.

Therapeutic procedures and surgical interventions declined by approximately 10 % for colorectal cancer compared to only 6-7 % for oncology more broadly (Rückher et al., 2022; ZfKD & GEKD, 2021). Figure 11 shows the difference in total numbers of inpatient cancer cases between 2020-21 and prior years. Preliminary data analyses also show that health behaviours may have changed differently across population sub-groups as a result of the pandemic, so that inequalities in risk factors for cancer may have been exacerbated; however, robust analyses are scarce (Jordan et al., 2020). According to the ZfKD, analyses of the effect of COVID 19 on cancer mortality based on registry data will not be possible before 2023. However, once possible, the ZfKD plans to use nationwide data from the cancer registries and other sources to analyse the provision of oncological services during the pandemic.

**Figure 11. The COVID-19 pandemic had strong effects on the volume of cancer treatment**

#### Evolution of the total number of inpatient cancer cases by month in 2020-21 compared to the same period in 2019



Source: Rückher et al. (2022).



Various studies were conducted to compare care during the pandemic with prior years to identify gaps and develop clinical recommendations and guidelines to prepare oncological care for similar times of scarce resources. These included a

broad study of ethical, legal and health economic implications of the pandemic on oncology and various studies on resource allocation for care of specific cancers. These led to guidelines for prioritisation and resource allocation in treatment.

## 6. Spotlight on inequalities

Age-standardised incidence of cancer is decreasing in Germany but is still slightly above the EU average. Although German men are 30 % more likely to be diagnosed with cancer than women, the difference between sexes is less marked than in the EU. Cancer prevalence is also increasing as a result of better chances of survival.

There are clear social disparities in risk factors, and between sexes in Germany.

- While smoking is more common than in the EU in all population groups, daily smoking is more than 35 % more prevalent among men than women, and more than 80 % higher in people with low education levels or low incomes than among those with high education levels or high incomes.
- Hazardous drinking is, in contrast to many behavioural risk factors, more common among more educated (4.9 % of the population vs. 3.8 % of people with low education), high-income (5.8 vs. 4.4 %) and urban population groups (5.1 % vs. 3.9 %).
- More than 60 % of men are overweight or obese compared to 47 % of women, and increases are driven by people of working age or low education levels.

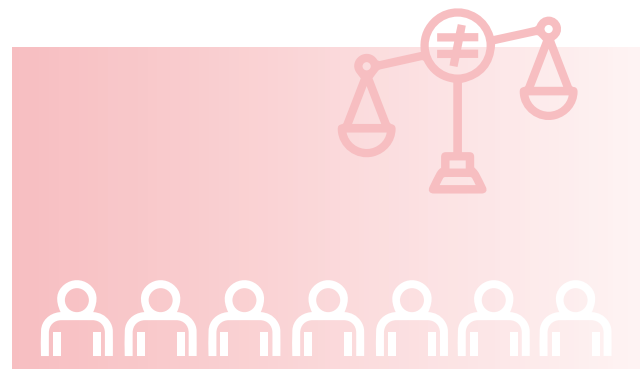
A national screening programme for breast cancer has been in place since 2009, and programmes for colorectal and cervical cancer became operational in 2019 and 2020. There are clear gradients by income and education.

- Uptake of breast cancer screening is more than 10 % higher among women in the higher than lower income levels.
- Disparities in cervical cancer screening are even more marked, with differences of 60 % between groups with higher and lower education and 40 % between groups on higher and lower income.

- Overall high uptake of colorectal cancer screening is also higher among women and people on high incomes.

Social health insurance provides equal access to prevention, treatment and long-term care regardless of income, place of residence and risk profile, and covers approximately 90 % of the population. Most of the remainder are covered by substitutive private insurance. Cancer services are free at the point of use, and unmet medical needs for reasons related to finances, geographic accessibility or waiting lists are close to zero. Variations in unmet needs across sexes and income groups are also minimal. This comes at a high cost: both the total cost of cancer and direct health care costs are higher in Germany than in any other EU country.

Data on inequalities in outcomes of cancer treatment are not available, and use of patient-reported outcome and experience measures is limited. Quality is mainly monitored through certification audits of specialised centres, and results are published at the hospital level. Overall, five-year net survival increased or remained constant in Germany between 2004 and 2014 across nearly all the most common cancer types and, although gains were generally less than those across the EU, survival remains above the EU average because of higher baselines.





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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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