European Cancer Inequalities Registry

THE NETHERLANDS

Country Cancer Profile

2023

European Commission

OECD

BETTER POLICIES FOR BETTER LIVES

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

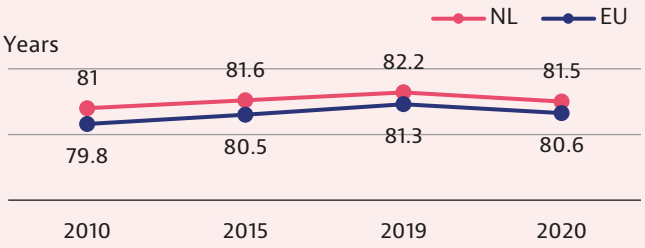
The data and information in the Country Cancer Profiles are based mainly on national official statistics provided to Eurostat and the OECD, which were validated to ensure the highest standards of data comparability. The sources and methods underlying these data are available in the Eurostat Database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

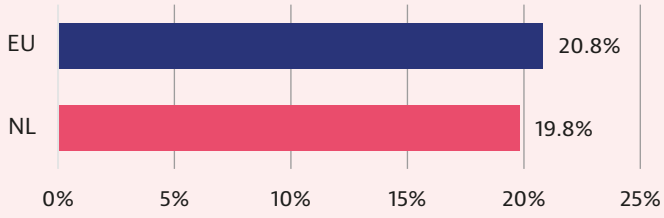
Contents

Summary of the main characteristics of the health system

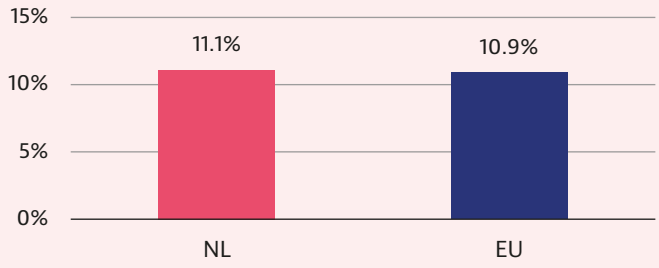
LIFE EXPECTANCY AT BIRTH (YEARS)



SHARE OF POPULATION AGED 65 AND OVER (2021)

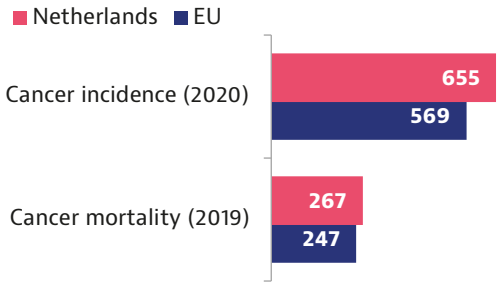


HEALTH EXPENDITURE AS A % OF GDP (2020)



Source: Eurostat Database.

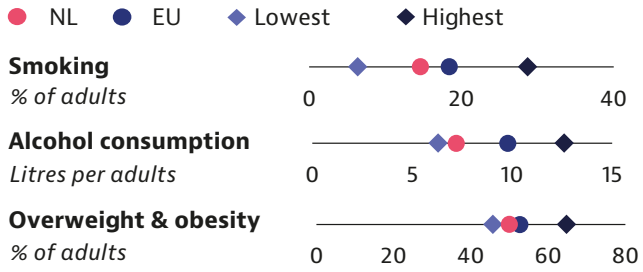
1. Highlights



Age-standardised rate per 100 000 population

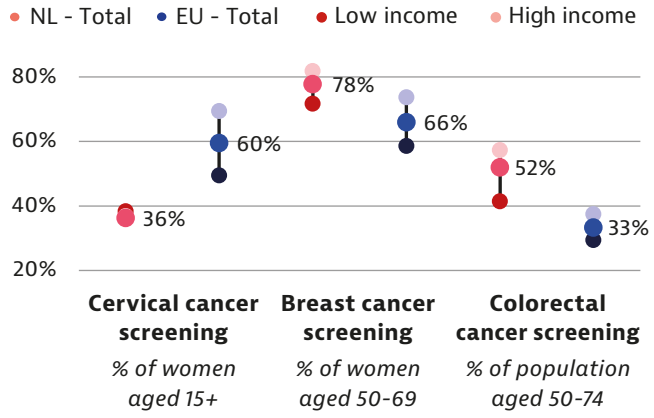
Cancer in the Netherlands

In 2020, estimated cancer incidence in the Netherlands was the second highest among EU countries. Although cancer mortality declined substantially during 2011-2019, the overall cancer burden has increased. The Netherlands is among the few EU countries without a national cancer plan set up by the government.



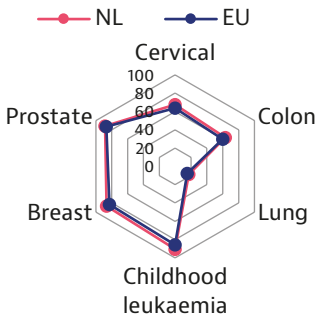
Risk factors and prevention policies

More than a third of all deaths in the Netherlands are attributable to unhealthy lifestyle. From 2018, a National Prevention Agreement seeks to address the many challenges posed by risk factors for cancer, such as alcohol consumption, smoking and overweight and obesity, which are still highly prevalent, although lower than the EU averages.

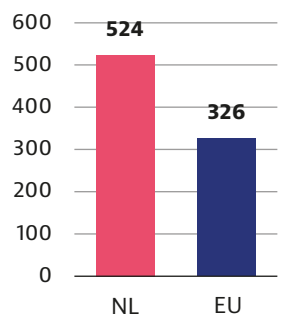


Early detection

The Netherlands has national screening programmes for breast, cervical and colorectal cancers. Although screening coverage rates for breast and colorectal cancers are generally higher than the EU averages, inequalities by income and education level are marked.



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



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

Cancer care performance

Five-year cancer survival rates have improved over the last decade. This results in part from a strong network of cancer care, underpinned by improvements in diagnostic procedures and therapeutics, a comprehensive national cancer registry and a robust clinical auditing system. Multidisciplinary team meetings and concentration of services are used as strategies to enhance quality of care. The Netherlands is among the EU countries with the highest total cost of cancer per capita. Although most cancer care is covered by basic health care insurance, out-of-pocket payments may still apply.

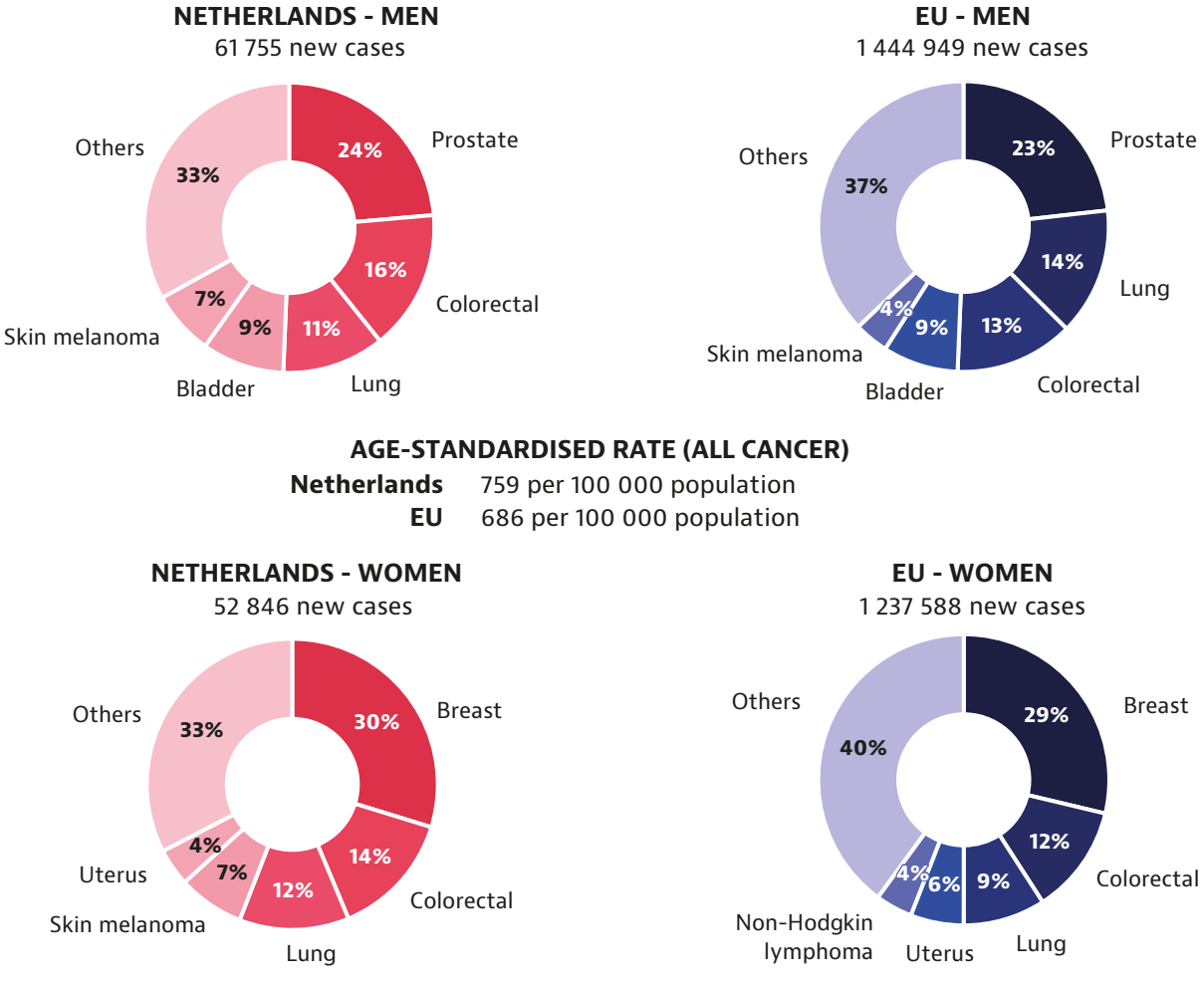
2. Cancer in the Netherlands

Cancer incidence in the Netherlands is the second highest among EU countries

According to European Cancer Information System (ECIS) of the Joint Research Centre based on incidence trends from pre-pandemic years, almost 115 000 new cancer cases were expected in 2020, which represents an age-standardised incidence rate of 655 new cases per 100 000 population, compared to the EU average of 569 per 100 000 (non-melanoma skin cancers excluded) (Figure 1). Cancer incidence was expected to be 31 % higher among men than women (759 vs. 577 new cases per 100 000 population). It was also expected to be 19 % higher among Dutch women than the EU average, but only 11 % higher among Dutch men than the EU average.

Figure 1. The cancers with highest incidence in the Netherlands are also leading cancers in the EU in 2020

Distribution of cancer incidence by sex in the Netherlands 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.

Cancer incidence among the paediatric population was estimated to be on a par with the EU average of 15 new cases per 100 000 children aged up to 14 years in 2020. Among people aged 65-85 years, cancer incidence was expected to be the third highest (2 158 new cases per 100 000 population) among EU countries, and 21 % higher than the EU average (1 788 per 100 000).

In 2020, gastric (stomach) cancer was expected to constitute 2 % of new cancer cases in men and 1 % in women. Skin melanoma was expected to constitute 7 % of new cancer cases in men and women. In 2013, the estimated number of new rare cancer cases in the Netherlands was 20 349.

The most frequent cancers among Dutch men and women mostly follow the pattern across the EU (Figure 1). Among men, prostate cancer is the most common (173 new cases per 100 000 population), followed by colorectal (120 per 100 000) and lung (90 per 100 000) cancer. Among women, breast cancer is the most common (174 new cases per 100 000 population), followed by colorectal (79 per 100 000) and lung (69 per 100 000) cancers. Among Dutch women, colorectal cancer incidence is 40 % higher and lung cancer incidence is 58 % higher than the EU averages.

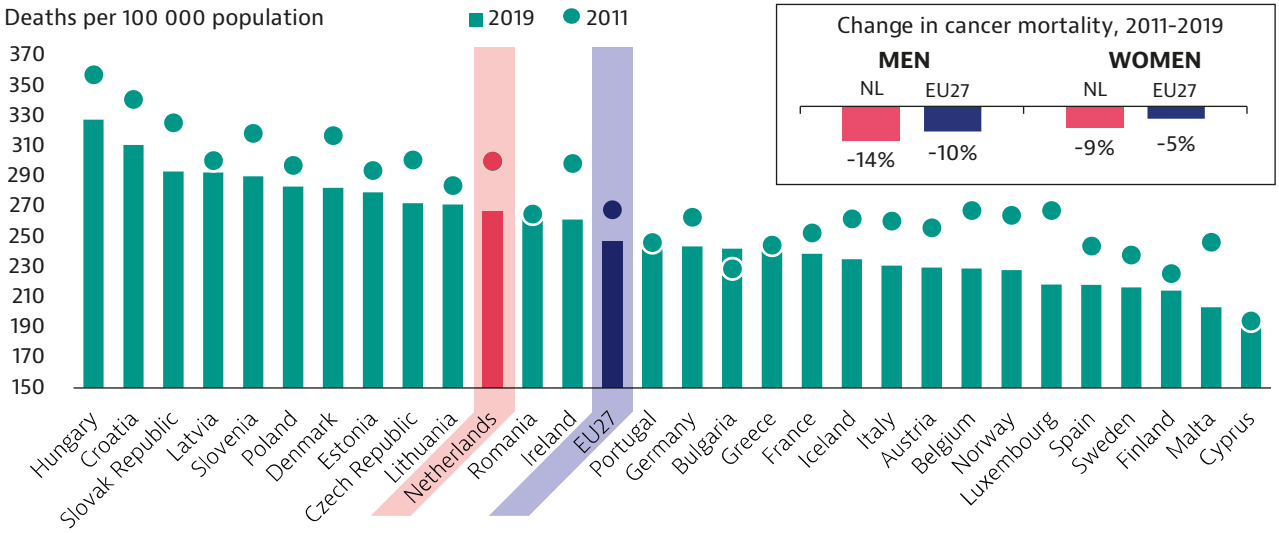
Cancer mortality substantially declined between 2011 and 2019, but the cancer burden has increased

Lung, colorectal and breast cancers are leading causes of death in the Netherlands. According to the Institute for Health Metrics and Evaluation (2022), in 2019, cancer accounted for 6 479 disability-adjusted life years (DALY) per 100 000 population in the Netherlands, which is 10 % higher than the EU average (5 866). The burden of cancer measured in DALYs has increased by 14 % over the past two decades (2000-2019) – one of the largest relative changes among EU countries.

In the Netherlands, despite of an overall cancer incidence higher than the EU average, cancer mortality registered considerable improvement during 2011-2019, decreasing by 11 %, placing the Netherlands among the EU countries where cancer mortality decreased the most (Figure 2). Despite the progress made, the cancer mortality rate in 2019 was 267 deaths per 100 000 population, which is higher than the EU average (247 per 100 000).

Among people aged 15-64 years, the cancer mortality rate decreased by 22 % to 65 deaths per 100 000 population; the reduction was less substantial for people aged 65 years and over (8 %), among whom the mortality rate was 1 100 deaths per 100 000 population.

Figure 2. Cancer mortality rates improved but overall cancer mortality is still above the EU average



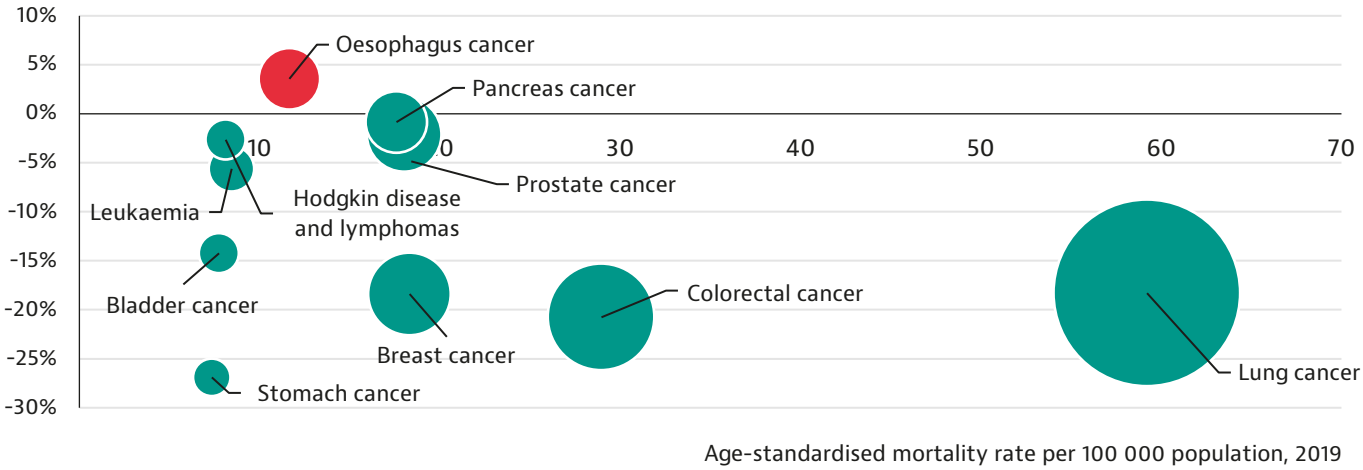
Note: The EU average is weighted (calculated by Eurostat for 2011-2017 and by the OECD for 2018-2019).
Source: Eurostat Database.

Age-standardised cancer mortality decreased for most main cancer types, except oesophagus cancer, which increased slightly (4 %) during 2011-2019 (Figure 3). The largest percentage changes in cancer mortality during the period occurred for gastric (stomach), colorectal, breast and lung cancers, varying from an 18 % reduction for lung and breast cancers to a 27 % reduction for gastric (stomach) cancer. Lung cancer, however, had the largest mortality rate at 59 deaths per 100 000 population in 2019.

During 2000 and 2018, potential years of life lost due to malignant neoplasms in the Netherlands saw a decrease of 30 %, and it accounted for 1 249 years of life lost among 100 000 people aged up to 75 years in 2018. The relative decrease was larger among men (34 %) than women (25 %), with 2 256 and 1 244 years of life lost in 2018, respectively.

Figure 3. Cancer mortality rates fell for most cancer types, but rates of improvement varied

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



Age-standardised mortality rate per 100 000 population, 2019

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

Many stakeholders in the Netherlands call for development of a national cancer plan

From 2005 to 2010, a national cancer control programme (Nationaal Programma Kankerbestrijding) fostered many activities not only related to prevention and diagnosis but also treatment, follow-up and psychosocial care, as well as aspects of education and research. Yet, the Netherlands does not have an overarching national cancer plan set up by the government. Instead, the Ministry of Health, Welfare and Sport invests in initiatives set forth by health care professionals, researchers, and patient organisations that are aligned with the Europe's Beating Cancer Plan (European Commission, 2021). A Dutch Cancer Agenda is now coordinated by the Netherlands Cancer Collective (Nederlands Kanker Collectief) in close collaboration with stakeholders involved in reducing the impact of cancer in the Netherlands.

The Cancer Survivorship Care Taskforce is an alliance wherein health care professionals, hospital associations, researchers, policy makers and patient organisations join forces and expertise to better address the continuing needs of people with cancer or with a history of cancer, notably the right to return to work and the right to be forgotten (a right that gives individuals the ability to exercise control over their personal data, including health information, by deciding what should be accessible to the public). This taskforce aims to advise the Ministry of Health, Welfare and Sport, to increase societal awareness on problems people with cancer or with a history of cancer face, and to optimise organisation of cancer care. Additionally, the taskforce stimulates development of regional oncological care networks in tandem with lobbying for development of a national cancer plan.

Comprehensive cancer centres and volume norms have been implemented

Seven regional comprehensive cancer centres have been established in the Netherlands since 1978. These are responsible, among other things, for development and implementation of care guidelines; supporting administration of the Netherlands Cancer Registry; and improving the coordination of cancer and palliative care. For

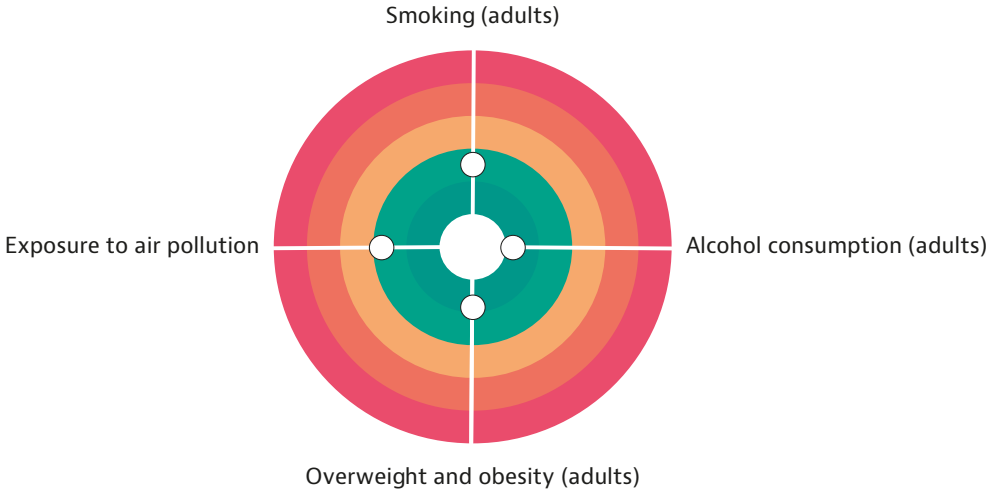
paediatric tumours, first diagnoses and initial treatment occur in a national centre in Utrecht, and follow-up treatment takes place in specialised centres closer to the patient's home and spread across the country. Since 2011, the comprehensive cancer centres have been organised under the umbrella of the Netherlands Comprehensive Cancer Organisation (IKNL), which is the institute that oversees oncological and palliative research and practice, and maintains the Netherlands Cancer Registry (see Section 5.2).

In 2007, formal agreements were established on minimum patient/procedure volumes. These follow the advice of the Quality of Cancer Care taskforce of the Dutch Cancer Society about the importance of concentrating complex services in specialised settings with adequate resources, expertise and volume, to enhance quality of care. Currently, minimal volumes are determined by Oncology-SONCOS (Foundation of Cooperation in Oncology), which is part of the Federation of Medical Specialists. Monitoring of volume norms occurs for some cancer types as part of quality assessment by the Dutch Institute of Clinical Auditing. This concentration of care led, to some extent, to regionalisation of care (where complex services are concentrated at a regional level). One of the positive effects of this is discussion of cancer cases in highly skilled multidisciplinary teams as part of regional oncological care networks.

3. Risk factors and prevention policies

According to the Public Health Foresight Study 2018 (National Institute for Public Health and the Environment – RIVM, 2022a), more than a third of all deaths in the Netherlands are attributable to unhealthy lifestyle – such as smoking, poor dietary habits, alcohol consumption and low physical activity – and to environmental factors such as air pollution. The Netherlands implemented several initiatives to address the many challenges posed by risk factors, and the country fares relatively well compared to most other EU countries (Figure 4). The first National Prevention Agreement was launched in 2018. This encompasses projects that bring together the Dutch government, municipalities and more than 70 other organisations, in support of reducing the burden of smoking, overweight and obesity and hazardous alcohol consumption by 2040. Although evidence on the impact of the Agreement to inform health policy decision making is lacking, negotiation of a new version is under way, with an increased focus on overweight and obesity. In 2020, expenditure on prevention accounted for 4.6 % of current health spending (higher than the EU average of 3.4 %), which represents an increase of 1.3 percentage points relative to 2019.

Figure 4. Although lower than the EU average, overweight and obesity are key public health concerns



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).

Alcohol consumption has decreased over the past two decades

Between 2010 and 2020, alcohol consumption per capita among people aged 15 years and over decreased by 21 % to 7.2 litres, which is well below the EU average of 9.8 litres of pure alcohol per person per year. According to the 2021 National Health Survey/Lifestyle Monitor, 8 % of the Dutch population aged 18 years and over were heavy drinkers and 7 % were excessive drinkers (Statistics Netherlands, 2022). To minimise the burden of alcohol consumption on health, the Dutch government instituted the Alcohol Act in July 2021 – a statutory law regulating selling and serving of alcohol. Furthermore, the National Prevention Agreement aims to lower excessive and heavy drinking to 5 % by 2040.

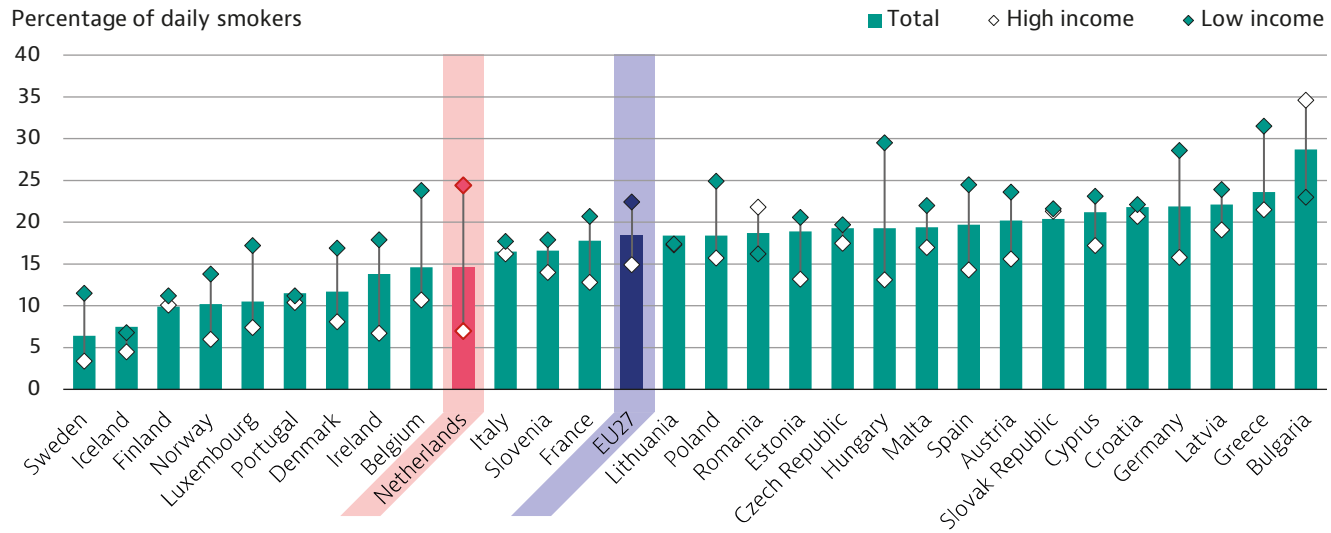
One fifth of adults are daily cigarette smokers, although the share of adult smokers has declined in recent years

In 2021, around 21 % of the Dutch population aged 18 years and over reported that they were smokers (Statistics Netherlands, 2022). The share of daily smokers of cigarettes in the population decreased by 2 percentage points during 2014-2019 to 15 %, which is below the EU average (18.4 %). The reduction in percentage change was somewhat less pronounced among men (-13 %) and among people aged 65 years and over (-11 %).

Smoking rates among people with a migration background (people who live in the Netherlands and have at least one parent who was born outside of the Netherlands) were greater than among those with no migration background (Netherlands Expertise Centre for Tobacco Control, 2021). While 19.3 % of people with no migration background were smokers, among people who have at least one parent born outside of the Netherlands in a country in Europe, North America, Oceania, Japan or Indonesia the share was of 21.7 %, and among people with at least one parent born elsewhere outside of the Netherlands the rate was 24.2 %. In addition, almost 2 % of the population aged 15 years and over reported being regular users of vaping products. Smoking rates have declined consistently following the introduction of smoke-free working environments.

Disparities in prevalence of daily smoking are large by income (Figure 5) and education; differences are less marked by age and sex. From 2014 to 2019, the share of people on lower incomes who were daily smokers increased slightly by 2 % (24.4 %), whereas among people on higher incomes the share decreased by 42 % (from 12.1 % to 7 %).

Figure 5. Daily cigarette smoking is three times higher among people on lower than higher incomes



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

All stakeholders involved in the National Prevention Agreement are committed to a package of measures and actions to ensure a smoke-free generation by 2040. The ambition for 2040 is that fewer than 5 % of the residents of the Netherlands aged 18 years and over and 0 % of young people and pregnant women will smoke.

Over half of the adult population are overweight or obese

As in most EU countries, according to the EHIS, the share of Dutch people aged 15 years and over considered overweight or obese increased between 2014 and 2019. The 5 % increase was among the lowest in the EU over the period, but 50 % of the

population aged 15 years and over were overweight and 14 % were obese in 2020. The rate of overweight and obesity is higher among men (55 %) than women (41 %), and among people with lower (59 %) than higher (41 %) education levels. Among young people (aged 4-17 years), the prevalence of overweight (obesity) was 15.9 % (3.5 %) in 2020.

Among people who have at least one parent born outside of the Netherlands in a country in Europe, North America, Oceania, Japan or Indonesia, the prevalence of overweight was of 43 %, but somewhat higher among the first than the second generation of people with such a migrant background (45 % and 42 %, respectively). Among people with at least one parent born elsewhere outside of the Netherlands, the overweight rate was 48 %, but a large difference exist between the first and second generations of people with that migrant background (54 % and 38 %, respectively).

According to the EHIS, the largest increase between 2014 and 2019 of overweight and obesity (a 42 % rise) was among men aged 15-64 years with lower education levels, to give a total share of almost 62 %. These trends are concerning, given that overweight and obesity carry significant risks for several conditions, including cancer. Under the National Prevention Agreement, overweight and obesity reduction targets were set for young people and adults by 2040. The Dutch government aims to reduce the overweight (obesity) rate to 9.1 % (2.3 %) among young people; among adults, the goal is to reduce the overweight (obesity) rate to 38 % (7.1 %) of the population.

Further investment is needed in changing dietary and physical activity habits

To achieve the ambitious targets for overweight and obesity rates among the population, changes in dietary habits and physical activity are needed, including greater consumption of fruit and vegetables. Rates in the Netherlands were below the EU averages for fruit (44 % vs. 56 %) and vegetable (36 % vs. 51 %) consumption in 2019. The government is implementing policies to address the situation, including agreements with industry partners to reduce salt, saturated fats and sugar in food products; changing nutrition labels to highlight high-quality food; and fostering health literacy programmes so that people can make informed choices in favour of healthy foods. These programmes are implemented across schools to support young people's choice of healthy diets.

According to the EHIS, three fifths of the population (62 %) spent 150 minutes or more per day on physical activity in 2019, which is almost double the EU average (33 %). Physical activity is more common among people with higher (71 %) than lower (55 %) education levels. It is also more common among men (65 %) than women (59 %), and among people aged 15-64 years (64 %) than among people aged 65 years and over (55 %). Physical activity was encouraged by the government in the National Prevention Programme 2014-2016. This aimed to foster local communities as sports motivators, awarding grants to sports clubs and fitness centres to develop activity programmes close to communities for sedentary or low participation groups, and supporting children from families on low incomes to join a sports club. Also, cycling is a common means of transport in the Netherlands.

Exposure to air pollution has decreased over the past decade

Air pollution is the single largest environmental health risk in Europe. In the Netherlands, exposure to air pollution in the form of PM_{10}[1] decreased from 25 µg/m^3 to 19 µg/m^3 between 2010 and 2019, which is slightly below the EU average (20.5 µg/m^3). In 2019, the concentration of $PM_{2.5}$ was also lower than the EU average (10.4 µg/m^3 compared with 12.6 µg/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 the Netherlands in 2019, a rate lower than the average across the EU (4 %).

Human papillomavirus vaccines are currently available free of charge to young girls and boys

HPV infection is a well-established cause of cervical cancer. In 2020, estimated incidence of cervical cancer was 9 new cases per 100 000 women in the Netherlands. The HPV vaccine is part of the National Immunisation Programme, and is available to citizens free of charge. It offers effective protection against six types of cancer. Girls in the Netherlands have received the HPV vaccine since 2010. National HPV immunisation coverage for girls born in 2005 increased to 53 % in 2019; if vaccinations among girls after their fourteenth birthday are included, coverage is 58.5 %. For boys, the vaccine has been included in the National Immunisation Programme since 2022. In the year boys and girls turn 10 years old, they receive an invitation to be vaccinated against HPV. It is possible for people who have not yet had the vaccination to still get it up to age 26. Vaccinations are given at municipal public health services and at local youth and family centres.

1 *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

The Netherlands has national screening programmes for breast, cervical and colorectal cancers

The Netherlands maintains three national population-based screening programmes (screening offered to a specific at-risk target population) for breast, cervical and colorectal cancers. These programmes are fully covered by the Public Health Subsidy Scheme and are coordinated by the RIVM. The cervical screening programme is delivered by general practitioners (GPs), the breast and colon screening programmes by separate organisations. Discussion about broadening cancer screening programmes to include lung cancer is ongoing, as in many other EU countries. National monitoring of the performance of the screening programmes is conducted by the IKNL, on behalf of the RIVM. In 2020, the COVID-19 pandemic disrupted operation of screening programmes for up to four months, depending on the programme (see Section 5.4). Along with the effects of the pandemic, shortages in the breast cancer screening workforce also affected capacity.

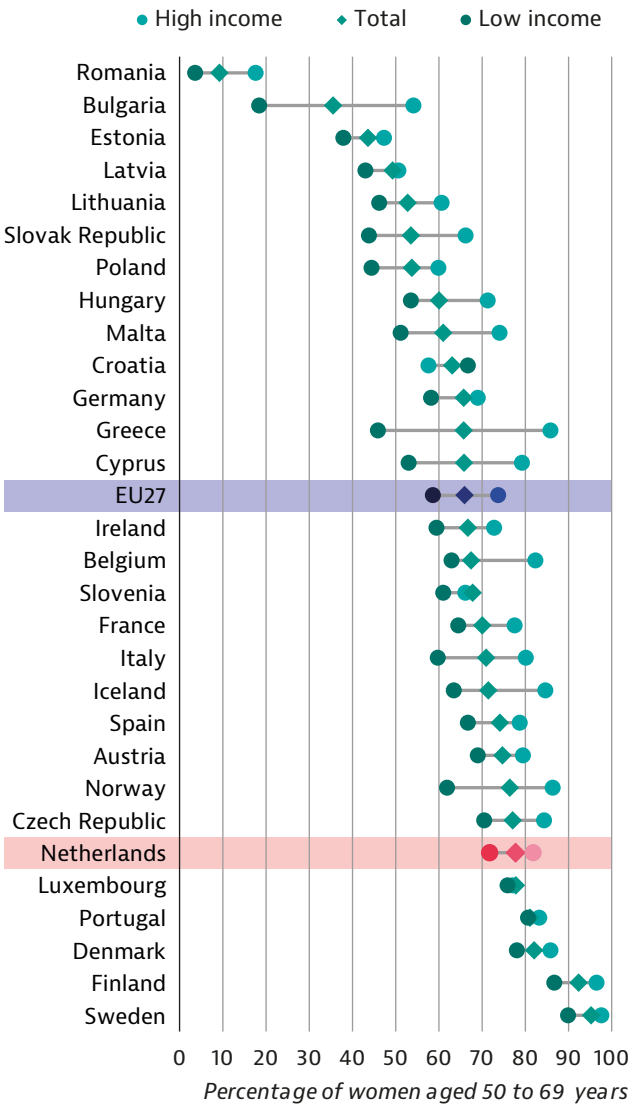
Immigrants are relatively less likely to take part in preventive screening programmes, such as cancer screening, in part because of language barriers and low health literacy (RIVM, 2022b). To strengthen participation rates in cancer screening programmes among migrant communities, the RIVM has translated pamphlets into English, Turkish and Arabic, and has created straightforward infographics and video animations translated into Turkish, Arabic, Berber and English, specifically for cervical cancer screening.

Women on higher incomes use breast cancer screening services more than those on lower incomes

The national breast cancer screening programme started in 1990 and until recently was run by five regional screening organisations across 69 screening centres (59 mobile and 10 permanent); since January 2022, the screening is run by a single organisation (Bevolkingsonderzoek Nederland). The programme is designed for women aged 50-75 years, who are invited for a mammogram every two years.

In 2019, 77.7 % of Dutch women aged 50-69 years reported having had a mammogram in the last two years, which is above the EU average of 65.9 % (Figure 6). Among women aged 65 years and over, 55 % reported having had a mammogram within the last two years, which is 18 percentage points higher than the EU average. The share of women who reported that they had received a breast examination was over 10 percentage points higher among women on higher (81.8 %) than lower (71.7 %) incomes. In addition, uptake of breast cancer screening was slightly more common among women with lower (77.5 %) than higher (76.9 %) education levels, and rates for both groups were above the EU averages of 63.9 % for women with

Figure 6. Income inequalities in breast cancer screening uptake are lower than 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.

lower and 71.5 % for women with higher education levels. In 2021, 1 221 792 women were invited to participate in breast cancer screening, with a participation rate of 73 % (IKNL, 2022). Among all participants, 2.6 % were referred for further examination.

Cervical cancer screening uptake is below the EU average, and the education gap is large

The national cervical cancer screening programme started in 1996. Screening for cervical cancer targets women aged 30-60 years, who are invited to participate every five years. During 2017-2019, the number of participants in cervical cancer screening remained unchanged at slightly below half a million women, with a participation rate of 56 % in 2019 (IKNL, 2022).

According to the EHIS, around 36 % of Dutch women reported having had a cervical smear test in the past three years in 2019, which is 23 percentage points below the EU average. Uptake of smear tests was more common among women with higher (46.5 %) than lower (23.5 %) education levels, and rates for both groups were substantially below the EU averages of 75.9 % for women with higher and 41.6 % for women with lower education levels. Some 36.8 % of women on higher incomes reported having had a cervical smear test compared with 38.3 % of women on lower incomes.

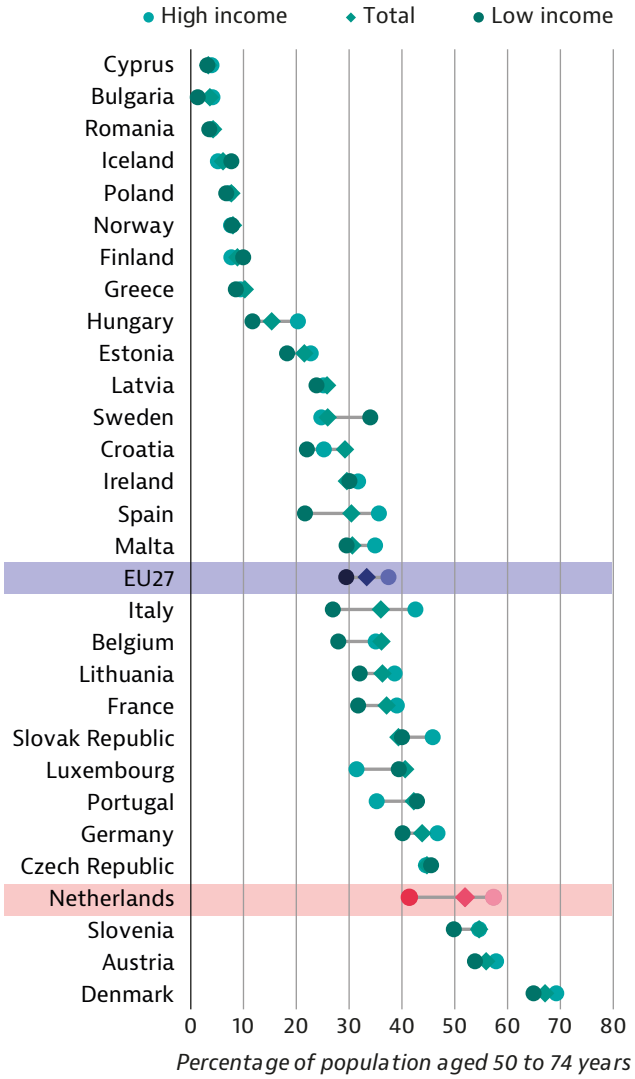
In 2021, 555 515 women participated in the national cervical cancer screening programme, which represents a participation rate of almost 55 % (42.7 % participated via a smear test and 12.1 % used a self-sampling kit) (IKNL, 2022). Even before the COVID-19 pandemic, participation rates were below 60 %. This suggests a need to improve awareness of the importance of participation in cervical cancer screening. Among all participants in 2021, 9.5 % tested positive for HPV and 2.7 % were referred for further examinations.

Colorectal cancer screening uptake is above the EU average, but the income gap is marked

The Dutch national screening programme for colorectal cancer started in 2014. It is available for men and women aged 55-75 years. According to the EHIS, in 2019, almost 52 % of Dutch people aged 50-74 years reported having had colorectal cancer screening in the past two years, which is higher than the EU average of 33 % (Figure 7). Uptake of colorectal cancer screening tests was 4 percentage points higher among men (54 %) than women (50 %). Participation was more common among those with lower (57 %) than higher (50 %) education levels, and more common among people on higher (57 %) than lower (41 %) incomes.

In 2021, more than 2.3 million people were invited to participate in colorectal cancer screening. The participation rate was about 71 % (73.4 % for women and 67.6 % for men) (IKNL, 2022). Although this cancer screening programme was set up more recently than the other two, the participation rate is quite high; this is explained in part by investment in research that informed design and communication (including awareness campaigns) of the programme. The participation rate was highest among people aged 65 years and over. Among all participants, 4.6 % were referred for a colonoscopy. In total, 2 790 colorectal cancers and 16 878 advanced adenomas were detected.

Figure 7. Income inequalities in colorectal cancer screening uptake in the Netherlands are the largest among EU countries



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.

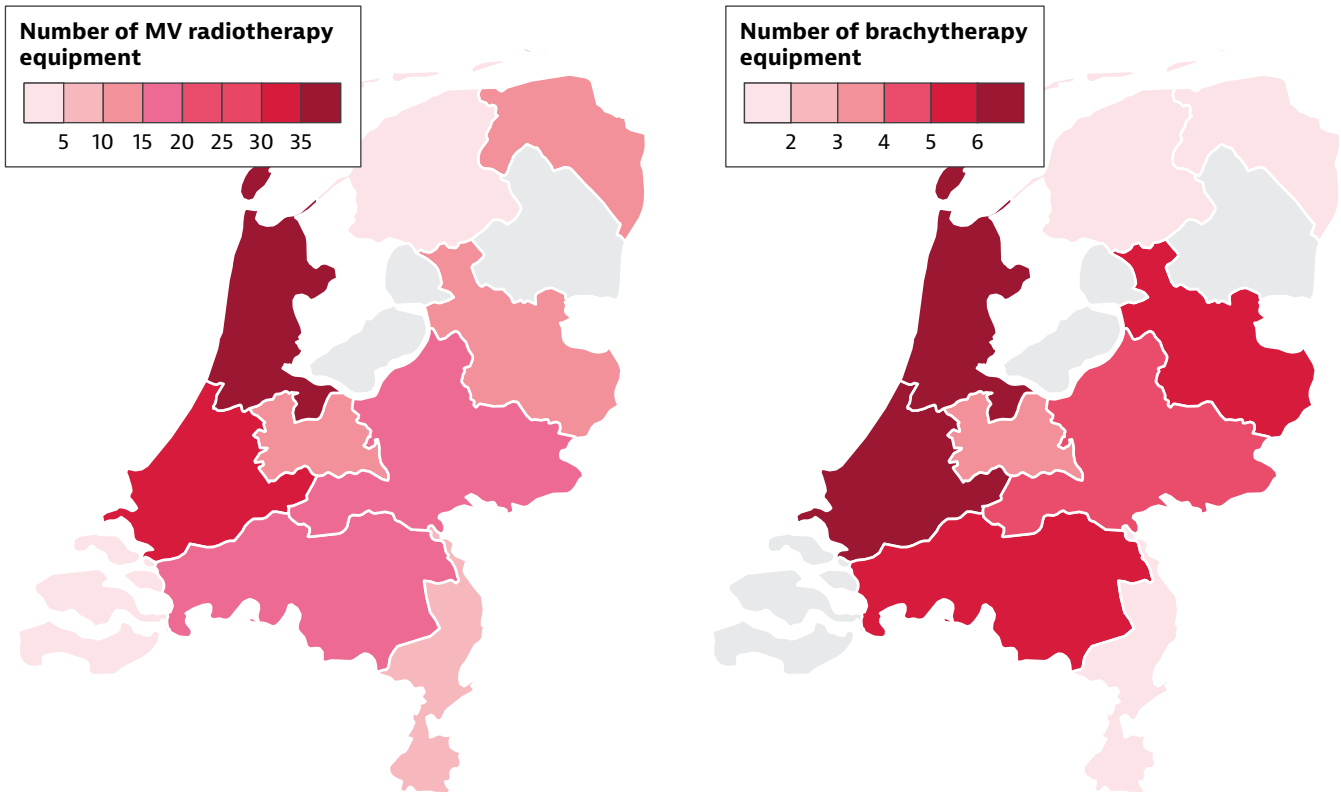
5. Cancer care performance

5.1 Accessibility

Radiation therapy is widely available across the country

The Netherlands has 21 radiation therapy centres, complemented by a dozen satellite centres. Based on self-reported data from radiation therapy centres to the International Atomic Energy Agency, megavolt (MV) radiotherapy (n = 148) and brachytherapy (n = 34) equipment is widely available across the country (Figure 8). In total, some 8.5 radiation therapy centres per 1 000 000 population provide MV radiotherapy, which is the fourth largest share among EU countries (the EU average is slightly higher than six radiation therapy centres per 1 000 000 population). Availability of radiation therapy centres providing brachytherapy is slightly higher than the EU average (1.9 radiation therapy centres per 1 000 000 population in the Netherlands compared with 1.8 of the EU average). Proton therapy is also available thanks to privately funded initiatives, which have facilitated setup of three proton beam centres: Holland Protonen Therapie Centrum, University Medical Centre Groningen and Maastro Clinic. Since 2011, quality assurance of radiation therapy departments is guided by national standards set out by the Dutch Society for Radiotherapy and Oncology, together with other stakeholders such as the IKNL. Performance indicators of radiation therapy centres are reported annually to foster transparency regarding quality of care – notably in terms of timeliness, effectiveness and safety.

Figure 8. Radiotherapy equipment is widely available across regions in the Netherlands



Note: Compilation of self-reported data from public and private care providers in 2021 (or nearest year).
Source: International Atomic Energy Agency.

Advanced CAR-T cell treatments are available in eight centres

In June 2018, the European Medicines Agency (EMA) recommended the first chimeric antigen receptor T-cell (CAR-T) therapy for approval in Europe. Access to these treatments has improved among EU Member States, but the high costs and logistical complexity of implementing them challenge their

rollout. In the Netherlands, eight centres can administer CAR-T cell therapies, and some are contributing to the CAR-T data collection initiative of the European Society for Blood and Marrow Transplantation. Secondary use of these data will support academic research and post-authorisation safety studies instituted by the EMA.

Palliative care is an integral part of regular health care in the Netherlands

Organisation of palliative care occurs mainly at the community level, led by GPs and nurses who provide home care, and most primary home care teams and nursing homes provide end-of-life care. If needed, palliative care specialists are asked to provide support and share their expertise. Multidisciplinary specialist palliative care teams for children and adults are available in every hospital providing cancer care. These care teams follow national standards and guidelines, but differences in skills mix, procedures and referrals undermine timely access to palliative care. Palliative care teaching is available across all medical schools and some nursing schools, mainly in combination with other disciplines. According to the EAPC Atlas of Palliative Care in Europe, in 2017, opioid consumption per capita in morphine equivalent (excluding methadone) was 294 mg in the Netherlands, which is more than double of the EU average (107 mg).

Retention of qualified human resources is becoming a major concern

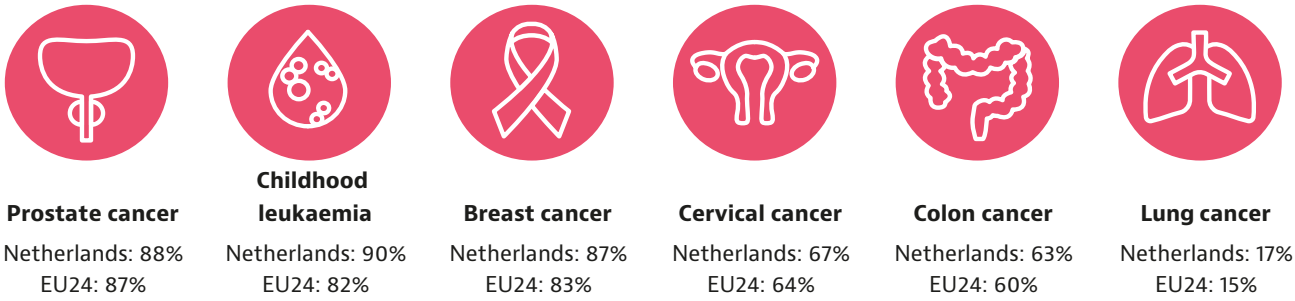
As in many other EU countries, the Netherlands faces problems related to retention of qualified human resources in the health care system – especially nurses and screening radiographers. Currently, the inflow of the number of employees in the health and social care systems is still somewhat larger than the outflow. However, recent survey data from a study conducted by the IZZ Foundation (2022) found that around 40 % of health workers are considering leaving their health care organisations or even the sector. Leading causes that impede health worker motivation, and thus encourage movement away from care provision in the Netherlands, are dissatisfaction with the possibilities for personal growth and career development as well as the lack of appreciation for their work, workload and work-life balance (IZZ Foundation, 2022). These flows of health workers to areas other than care provision are most visible among young health professionals.

5.2 Quality

Five-year cancer survival rates have improved over the last decade

The Netherlands performs better than the EU average on five-year survival rates for selected cancers (childhood leukaemia, prostate, breast, cervical, colon and lung cancer), based on the most recent comparative data available for people diagnosed between 2010 and 2014 (Figure 9). This links to improved cancer care quality – notably in terms of early detection and access to innovative treatments such as CAR-T cell therapy. From 2000 to 2014, the five-year survival rate for cervical cancer improved by 2 percentage points and for breast cancer improved by 3 percentage points. Improvements in survival rates for childhood leukaemia (6 percentage points) and lung cancer (5 percentage points) were slightly higher. The survival rate for lung cancer remained disproportionally low (17 %) relative to other cancers, although it is similar to the EU average (15 %). National estimates from the IKNL on five-year survival rates for people diagnosed between 2011 and 2020 suggest significant improvements in lung (23 %) and colorectal (67 %) cancers.

Figure 9. Five-year survival rates in the Netherlands are higher than the EU averages



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.

Multidisciplinary team meetings to discuss treatment decisions are part of standard cancer care

All new diagnosed cancer cases are discussed in multidisciplinary team meetings organised according to the type of cancer. Although these meetings are not defined by law, their uptake among cancer care providers has been quick. A broad range of experts are involved, including medical oncologists, surgeons, radiation oncologists, pathologists and others. Depending on the case, other services may be called to support therapeutic decision making. The meetings aim to establish comprehensive and inclusive decision-making processes for people with cancer; to strengthen communication between specialists on managing evidence-based treatment; and to ensure timely initiation of treatment. For some tumours, it is difficult to determine in which multidisciplinary meeting the case should be discussed; in such situations, it may be necessary to discuss the case in two multidisciplinary meetings. After a multidisciplinary meeting, a report is sent within a few days to the patient's GP.

Cancer care quality improvement cycles are nurtured by a robust clinical auditing system

Over the years, national guidelines on care quality have been introduced for cancer care (including rare cancers), underpinned by an auditing system facilitated by the non-profit organisation the Dutch Institute of Clinical Auditing. Several registries monitor various structure, process and outcome indicators for a number of cancer types (mainly surgery-based), fostering benchmarking and improvement cycles. In addition to measuring clinical outcomes of care, some registries also use patient-reported outcome measures (PROMs) to improve care quality from the perspective of patients. The auditing system covers breast, colorectal, gynaecological, head and neck, liver, lung, pancreatic, skin and upper gastrointestinal cancers. Prostate cancer will also have a functioning registry from the end of 2022. These registries are implemented nationwide, giving participating health care providers access to their performance metrics via reports and a dedicated dashboard, and providing other stakeholders – such as patients and carers – transparency regarding quality of care.

While there are many clinical trials on cancer only a few have publicly available results

The IKNL hosts a dedicated webpage where people with cancer and health care professionals can search for clinical trials supporting patient access to evidence-based treatment. The platform also covers quality of life and observational studies. Sharing information on future and ongoing clinical studies is important, but so is sharing their results once available. According to data on the 23 Dutch companies, universities, hospitals and research institutions most active in conducting drug trials, of the 800 drug trials assumed to be completed, only 3 % of the results had been shared (Health Action International, 2020). Further efforts are needed to strengthen transparency of drug trial results, since failing to report results of drug trials has substantial negative consequences for patients; limits capacity for evidence-informed policy decision making; and slows medical progress.

The Netherlands Cancer Registry is comprehensive and oriented on research

Since 1989, the Netherlands Cancer Registry (NCR) has collected data on care trajectories of people with cancer by registering diagnosis, tumour staging, tumour characteristics and treatments (both procedures and medication received after diagnosis). Data on diagnostics, follow-up care and survival are also collected. These data are gathered by NCR data managers, who partly work onsite at hospitals based on agreements with those hospitals to grant access to electronic medical records. Additionally, the NCR collects survey data on cancer capacity, focusing on aspects such as staffing, equipment and production of all departments involved in cancer care.

NCR data and insights support health systems by informing the decision making of various stakeholders – notably policy makers, the health care sector (hospitals and other health care facilities, professionals and patient organisations), citizens (including patients) and the scientific community. Patient organisations are involved in discussing what data are collected and for what purpose. The NCR also collaborates in various international research-oriented efforts, notably by partnering with the International Agency for Research on Cancer and communicating anonymous data to the database of the European Network of Cancer Registries. It is expected that these initiatives will continue and expand as European health data ecosystems mature to support secondary uses of cancer data.

The NCR has a citizen service number (BSN) pseudonym that makes a nationwide cancer dataset possible by using various local information systems (including municipality systems and pharmacy data) and national or central registries (such as the information system for death certificates). Other linkages are possible upon

request – for example, with the Nationwide Pathology Databank, which collects data on the pathological diagnosis, and the Patient-Reported Outcomes Following Initial treatment and Long-term Evaluation of Survivorship (PROFILES) registry, which combines population-based cancer registry data with PROMs. This facilitates monitoring of the physical and psychosocial impacts of cancer and its treatment through the lenses of people with a history of cancer via questionnaires.

5.3 Costs and value for money

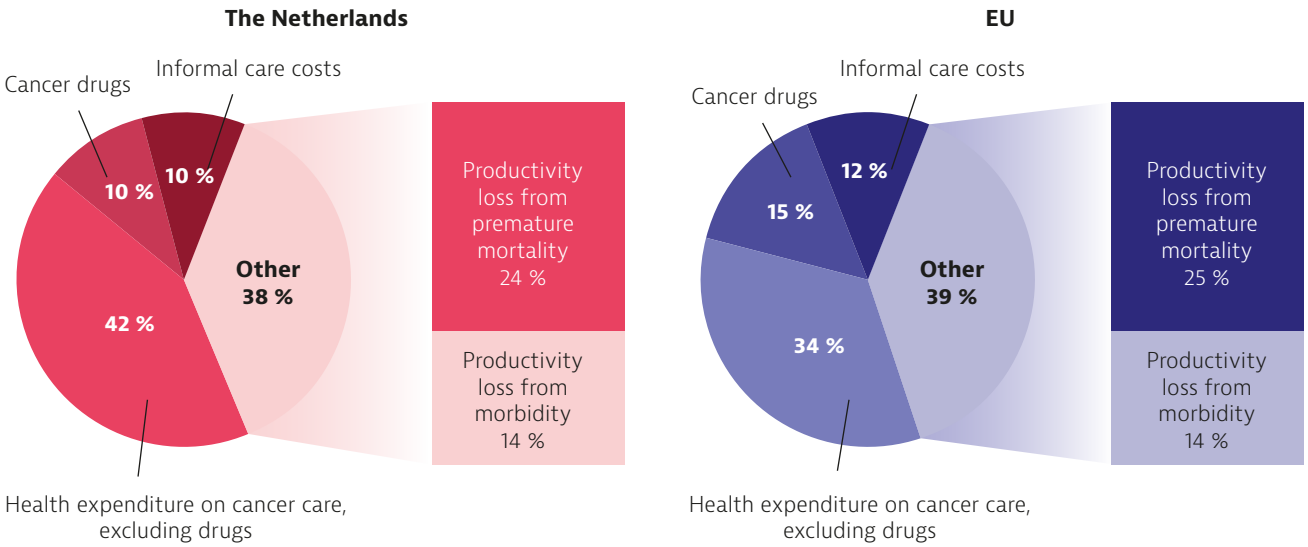
Most cancer care is covered by basic health care insurance, but out-of-pocket payments are common

In the Netherlands, government regulations guarantee access to universal and affordable care via a social health care insurance system. All residents are required to purchase basic health care insurance, which covers a benefits package defined by the government. Every calendar year, people are expected to cover the first EUR 385 spent on care covered by the benefits package. Most cancer care treatments are covered by basic health care insurance, but depending on the care provider, some cancer treatments may not be covered – for example, physiotherapy, psychotherapy, dental care or oncological rehabilitation. To overcome this potential barrier, people can purchase additional insurance coverage or may have to cover a part of the treatment out of pocket. This can cause financial distress among people with cancer, who are likely to experience increased expenses and/or lower income after diagnosis. In 2019, the voluntary health insurance sector represented almost 7 % of health spending compared with 5 % across the EU (OECD/European Observatory on Health Systems and Policies, 2021).

The Netherlands is among the EU countries with the highest total cost of cancer per capita

The costs associated with cancer care vary greatly among EU countries. In 2018, among EU Member States, the cost per capita, adjusted for purchasing power parity (PPP) varied from EUR 160 in Romania to EUR 524 in the Netherlands and Germany (Hofmarcher et al., 2020). The cancer cost per capita in the Netherlands was 61 % higher than the EU average (EUR 326). Of a total cost of EUR 10 163 million, direct costs accounted for 52 % of health expenditure on cancer care (EUR 370 per capita), of which one tenth related to cancer drug expenditure (Figure 10). A Dutch cost of illness study determined a cost per capita of EUR 344 (excluding indirect and informal care costs) in 2019 (RIVM, 2019). Figure 10 also shows productivity losses accounted for 38 % of health expenditure on cancer care, of which premature mortality caused the largest impact (24 %), followed by productivity loss from morbidity (14 %). Informal care, which represents the opportunity cost of time forgone by relatives and friends to provide unpaid care, accounted for an estimated 10 % of health expenditure on cancer care. The relative distribution of costs of cancer care in the

Figure 10. Direct costs of cancer care in the Netherlands are higher than the EU averages



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

Netherlands emphasise somewhat larger (by 8 percentage points) health expenditure on cancer care (excluding drugs) than the EU average. The relative weights of costs are below the EU averages by 5 percentage points for cancer drugs and by 2 percentage points for informal care.

5.4 COVID-19 and cancer: building resilience

The burden of disease due to acute COVID-19 in 2020 is estimated at 286 100 disability-adjusted life years, which is 17 times higher than the burden of an average influenza season in the Netherlands (McDonald et al., 2022). Although most of the burden is related to years of life lost due to premature death, part is also related to changes in lifestyle and behaviour – notably smoking and dietary habits. More health loss is expected downstream due to other effects of COVID-19, such as postponing surgery and interruptions to population-based cancer screening programmes. The pandemic has also affected the financial sustainability of the health care system. In 2020, health care insurers and providers agreed on measures to compensate revenue losses and extraordinary spending due to COVID-19. The Dutch government allocated additional tax revenues for 2020 and 2021 to the health sector, including for testing and contact tracing (EUR 476 million in 2020 and EUR 450 million in 2021) and intensive care unit beds (EUR 80.1 million and EUR 93.9 million) (OECD/European Observatory on Health Systems and Policies, 2021).

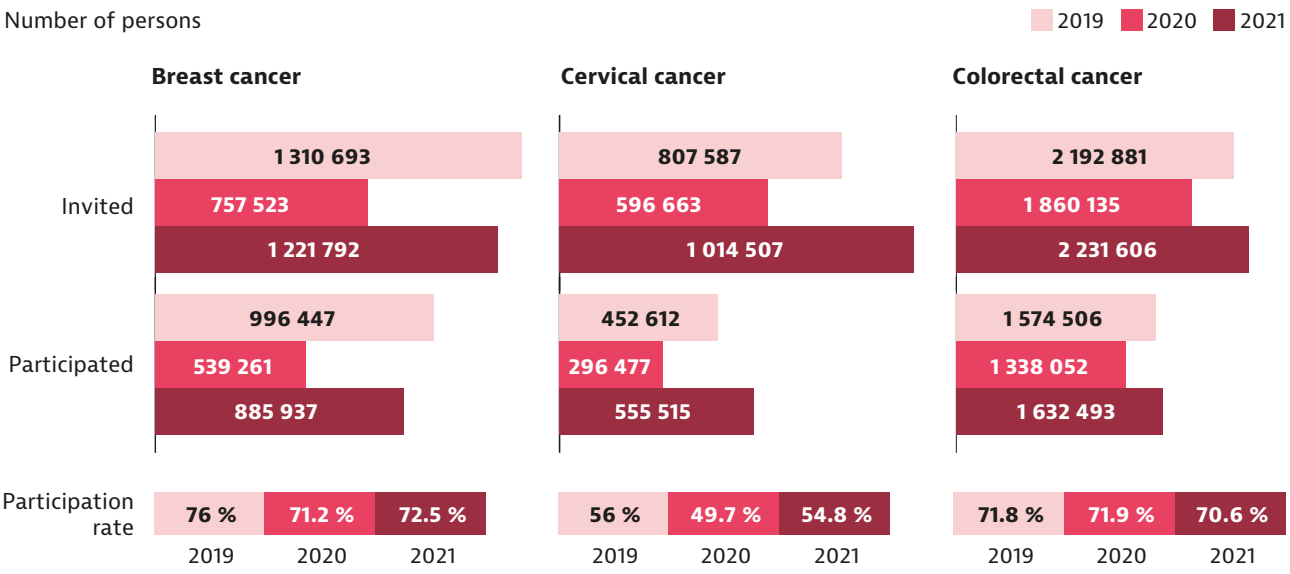
The pandemic halted population-based cancer screening activities, but they rebounded swiftly

As in many other health care systems, cancer screening activities were postponed from the onset of the pandemic. Before resuming care, stakeholders worked together to adapt treatment protocols in spring 2020, both to minimise the risk of infection for patients and to prioritise care based on urgency tiers. However, many people were afraid of becoming infected with COVID-19 and chose to forgo or postpone screening and treatment – a situation reported in many other countries (Fujisawa, 2022). This impact can be seen in the reduction of referrals from GPs, and numbers of diagnoses and surgical procedures.

People only started to resume screening and treatment after a national campaign called "Cancer does not wait till corona is over". The IKNL estimated that 4 000 fewer diagnoses were made over the whole of 2020 relative to 2019, largely driven by the temporary suspension of breast and colorectal screening programmes. Due to the higher number of diagnoses in autumn 2020 and early 2021, the gap compared to previous years has largely been made up for most cancer types. Additionally, staging data do not indicate that more patients had metastases at the time of diagnosis in 2020 owing to possible delays in diagnosis. The first data about stage distribution in breast cancer in all ages show that mostly early-stage diagnoses have decreased, and the number of advanced-stage breast cancer diagnoses has not gone up compared with 2019 (Eijkelboom et al.,2021). In weeks 9-11 of 2020 (between the first COVID-19 case and the lockdown), the incidence of stage II tumours fell significantly, while in weeks 12-13 (during the lockdown, and when screening activity was halted), the incidence of stage I, II and III tumours fell significantly. The incidence of all tumours, except stage IV, also fell significantly in weeks 14–17 when referrals from the screening programme ended (Eijkelboom et al.,2021).

The breast cancer screening programme resumed in mid-June 2020 with limited capacity due to the COVID-19 pandemic and shortages in the screening workforce. By autumn 2020, capacity was about 80 %, which supported the decision to extend the screening interval of two years to a maximum of three years. The share of women invited for breast screening in 2020 decreased by 42 % relative to 2019, and the participation rate decreased to 71.2 % compared with 76 % in 2019 (Figure 11). In the first half of 2021, the number of diagnoses was similar to numbers in 2017-2019. From March 2020 to December 2021, slightly more women were diagnosed with metastatic breast cancer than in previous years. Relative to 2020, in 2021, the number of women invited for breast screening increased 61 % and the number of participants increased 64 %; the overall participation rate was 72.5 % in 2021.

Figure 11. Cancer screening activities rebounded swiftly from the COVID-19 pandemic



Source: IKNL (2022).

Cervical cancer screening was put on hold in mid-March 2020 and slowly restarted in July 2020. Due to the pandemic, 26 % fewer invitations were sent in 2020. The participation rate in 2020 was 49.7 % (296 477 women screened). Among the women screened in 2020, 84 % had a smear test; the remaining women used a self-sampling kit, which is a rate double that in 2019.

Colorectal cancer screening was halted from mid-March 2020 to mid-May 2020; notwithstanding, 85 % of the target population was invited to participate. In 2020, the participation rate was about 72 % (more than 1.3 million people). Among participants, 4.3 % (more than 56 000 people) had an unfavourable faecal immunochemical test result and were referred for a colonoscopy. A population-based study showed that people presented a later-stage at diagnosis, but the overall impact of the pandemic was limited (Meijer et al., 2022). Some improvements were noted, such as a reduction by 4.5 days in the median time between diagnosis and first treatment, probably driven by performing fewer procedures and prioritising colorectal cancer procedures among late-stage tumours.

The rollout of policies sought to minimise the impact of the pandemic on people with cancer

From the onset of the COVID-19 pandemic, the Netherlands adopted several mitigation strategies to minimise the effects of successive waves (OECD/European Observatory on Health Systems and Policies, 2021). To reduce the effect of these restrictions on care accessibility for people with cancer, digital care was strengthened; for example, teleconsultations were encouraged as much as possible, and about 40 % of the population took part in a remote consultation. The implications on care quality – notably outcomes and experiences – of using teleconsultations are not clear; thus, whether these changes will remain in effect in the future for people with cancer depends on various factors.

6. Spotlight on inequalities

In the Netherlands, government regulation guarantees access to universal and affordable care via a social health care insurance system. All residents are required to purchase basic health care insurance, which covers a benefits package defined by the government. Most cancer care treatments are covered by basic health care insurance. Innovative cancer treatment such as proton beam therapy is available in three centres in the Netherlands, which make it less accessible than other treatments such as radiotherapy. Inequalities exist, however – notably in cancer prevention and access to early diagnosis.

- Although smoking prevalence decreased in recent years, in 2021 around 21 % of the adult population were smokers. Smoking rates among people with a migration background were greater than among those with no migration background. Disparities in daily smoking rates by income and education are large: daily smoking among people on lower incomes increased slightly to 24.4 %, whereas among people on higher incomes it decreased to 7 %. Differences are less marked for age and sex.
- Half of the population is overweight or obese. According to the EHIS, rates of overweight and obesity are higher among men (55 %) than women (41 %), and among people with lower (59 %) than higher (41 %) education levels. Among other factors, this is linked to physical activity participation among the population, which is more prevalent among people with higher (71 %) than lower (55 %) education levels.
- The Netherlands has three national population-based screening programmes for breast, cervical and colorectal cancers. According to the EHIS, the share of women participating in breast cancer screening among those on higher incomes is more than 10 percentage points higher than the share among those on lower incomes. For cervical cancer screening, smear test uptake was more prevalent among women with higher (46.5 %) than lower (23.5 %) education levels. Participation in colorectal cancer screening was also higher among men (54.1 %) than women (49.7 %) and people on higher (57.3 %) than lower (41.4 %) incomes.

Several policies have been implemented to improve access to high-quality cancer care and reduce disparities, including maintenance of a research-oriented national cancer registry; implementation of multidisciplinary team meetings as part of standard cancer care; and using a robust clinical auditing system to support quality improvement cycles. In 2020, the pandemic disturbed operation of screening programmes for up to four months, but the effects were limited. Screening and five-year survival rates will require close monitoring in the coming years to identify the actual effects of such delays and forgone care.

References

Eijkelboom A et al. (2021), Impact of the COVID-19 pandemic on diagnosis, stage, and initial treatment of breast cancer in the Netherlands: a population-based study, *Journal of Hematology and Oncology,* 14(64).

European Commission (2021), *Europe's Beating Cancer Plan*. Brussels, European Commission, https://tinyurl.com/2p85x9wp.

Fujisawa R (2022), *Impact of the COVID-19 pandemic on cancer care in OECD countries*. Paris, OECD Publishing, https://doi.org/10.1787/c74a5899-en.

Health Action International (2020), *Clinical trial transparency in the Netherlands: mapping unreported drug trials*. Amsterdam, Health Action International, https://tinyurl.com/3kbm86yk.

Hofmarcher T et al. (2020), *The cost of cancer in Europe 2018,* European Journal of Cancer, 129:41-9.

IKNL (2022), *Cancer screening:* https://iknl.nl/Kankersoorten; accessed on 31/10/2022.

Institute for Health Metrics and Evaluation (2022), *The 2019 Global Burden of Disease (GBD) study:* https://vizhub.healthdata.org/gbd-results; accessed on 31/10/2022.

IZZ Foundation(2022), *Monitor Gezond werken in de zorg:* https://tinyurl.com/yckjtwa3; accessed on 31/10/2022.

McDonald S et al. (2022), *The estimated disease burden of acute COVID-19 in the Netherlands in 2020, in disability-adjusted life-years,* European Journal of Epidemiology, 37:1035-1047.

Meijer J et al. (2022), *Impact of the COVID-19 pandemic on colorectal cancer care in the Netherlands: a population-based study, Clinical Colorectal Cancer,* 21(3):e171-e178.

Netherlands Expertise Centre for Tobacco Control (2021), *Smoking in the Netherlands: key statistics for 2020*. Utrecht, Netherlands Expertise Centre for Tobacco Control, https://tinyurl.com/rwzcku4u.

OECD/European Observatory on Health Systems and Policies (2021), *Netherlands: Country Health Profile 2021*. Paris, OECD Publishing, https://doi.org/10.1787/fd18ea00-en.

RIVM (2019), *Cost of illness 2019:* https://tinyurl.com/335c2ahx; accessed on 31/10/2022.

RIVM (2022a), *The Public Health Foresight Study 2018:* https://www.vtv2018.nl/en; accessed on 31/10/2022.

RIVM (2022b), *Tailor-made information will help immigrants make decisions on taking part in screening programmes:* https://tinyurl.com/2vaax577; accessed on 31/10/2022.

Statistics Netherlands (2022), *Obesity, smoking and drinking hardly down since 2018*. The Hague, Statistics Netherlands, https://tinyurl.com/2p966y2k.

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.

Please cite this publication as:
OECD (2023), *EU Country Cancer Profile: Netherlands 2023*, EU Country Cancer Profiles, OECD Publishing, Paris, https://doi.org/10.1787/89b32870-en.

ISBN 9789264642478 (PDF)
Series: EU Country Cancer Profiles

European Commission

OECD
BETTER POLICIES FOR BETTER LIVES