This article presents an overview of statistics related to cancer in the European Union (EU) and focuses on three aspects: deaths from cancer, cancer healthcare and the availability of specialist healthcare personnel and equipment for the treatment of cancer. Some of the statistics presented in this article are only available for the broader category of neoplasms, which includes benign and uncertain neoplasms as well as malignant ones (cancer). An accompanying article, Cancer statistics - specific cancers, looks in more detail at statistics for a selection of specific cancers: colorectal cancer, lung cancer, breast cancer and prostate cancer.

This article is one of a set of statistical articles concerning health status in the EU which forms part of an online publication on health statistics.

Deaths from cancer

In 2015, 1.3 million people died from cancer in the EU-28, which equated to more than one quarter (25.4%) of the total number of deaths — see Table 1. Cancer accounted for a somewhat higher share (28.7%) of deaths among men than among women (22.1%).
Among the EU Member States, the share of deaths from cancer in the total number of deaths in 2015 exceeded 30.0 % in the Netherlands and Slovenia: among men this share peaked at 36.0 % in Slovenia, while among women it peaked at 27.7 % in Ireland and 27.8 % in Denmark. By contrast, less than one fifth of all deaths in Bulgaria and Romania were caused by cancer.

For the EU-28, the standardised death rate for cancer was 260.6 per 100 000 inhabitants in 2015, lower than the rate for circulatory diseases, but higher than the rate for most other causes of death (at a similar level of the International Statistical Classification of Diseases and Related Health Problems (ICD) ). An analysis by gender and by age shows large differences in standardised death rates for cancer: for men the rate (346.2 per 100 000 male inhabitants) was 72 % higher than that for women (200.8 per 100 000 female inhabitants), while the rate for persons aged 65 and over was 13 times as high as it was for younger persons (those aged less than 65 years).

Among the EU Member States, the highest standardised death rates for cancer were recorded in Hungary, Croatia and Slovakia, each with rates of at least 320 per 100 000 inhabitants in 2015. Cyprus recorded the lowest standardised death rate for cancer among the Member States, 206.7 per 100 000 inhabitants and also recorded the lowest standardised death rates for cancer for men (266.2 per 100 000 male inhabitants); Spain recorded the lowest rate for women (155.5 per 100 000 female inhabitants). For men, the highest standardised death rates for cancer were reported in Croatia, Estonia, Hungary, Slovakia, Latvia and Lithuania, all with rates close to or above 450 per 100 000 male inhabitants. For women, the highest standardised death rates for cancer were recorded in Hungary and Denmark, both with rates over 250 per 100 000 female inhabitants.
Cancer healthcare

Three sets of data are available for cancer healthcare. These concern the number of discharges of in-patients, the average length of stay for in-patients, and the type of operations and procedures performed.

Concerning the provision of care, this article concentrates on in-patient care and day care. Both in-patient care and day care comprise a formal admission into a health care facility such as a hospital for diagnosis, treatment or other types of health care. While in-patient care involves an overnight stay after admission, day care comprises planned medical and paramedical services delivered to patients without an overnight stay: day care patients are formally admitted with the intention of being discharged on the same day. The inclusion of accommodation with medical and ancillary care constitutes the main distinction between in-patient and outpatient care.

In 2016, there were around 7.1 million in-patients who were discharged from hospitals in the EU-28 (2015 data for Hungary, Poland and Portugal, no recent data for Greece) having been treated for neoplasms.

Austria recorded the highest discharge rate for in-patients with neoplasms

From Figure 1 it can be seen that, for all neoplasms, the highest discharge rate for in-patients was in Austria, where 2.9 thousand in-patients per 100 000 inhabitants were discharged in 2016 after diagnosis or treatment for neoplasms. In Germany, Hungary (2015 data), Bulgaria, Croatia and Estonia (2014 data), this rate also exceeded 2 000 per 100 000 inhabitants. Elsewhere the rate ranged from 964 per 100 000 inhabitants in Denmark to 1 979 per 100 000 inhabitants in Romania, with the United Kingdom (776 per 100 000 inhabitants), Malta (764 per 100 000 inhabitants), Portugal (735 per 100 000 inhabitants; 2015 data), Cyprus (693 per 100 000 inhabitants) and Ireland (690 per 100 000 inhabitants) below this range.
In 2016, the average length of stay for in-patients having been classified for the purpose of their treatment or investigation under neoplasms ranged among the EU Member States (see Figure 2; note there are no data for Greece) from 5.0 days in Bulgaria to 10.1 days in Portugal (2015 data). A comparison of the data for 2016 with that for 2011 (see Figure 2 for the precise availability) shows an overall downward pattern in the average length of stays for in-patients, with increases only being recorded for Malta and Luxembourg, while there was no change in the average length of stay in Slovakia; an increase was also recorded for Turkey among the non-member countries. The largest reduction in terms of the average number of days was recorded in the Netherlands (1.5 days fewer in 2016 than in 2011).
Table 2 presents data for the frequency (relative to population size) with which a range of operations and procedures were carried out: the selected operations and procedures are used mainly for the diagnosis or treatment of cancer. The most common of these was a colonoscopy (ICD-9-CM codes 45.22-45.25, 45.42 and 45.43). A colonoscopy is a procedure to examine the inside of the colon, whereas a colectomy (codes 45.7 and 45.8) is an operation to remove all or part of the colon. In 2016, close to half a million operations were performed in the 22 EU Member States with data available to remove part or all (total mastectomy) of a mammary gland (codes 85.20-85.23, 85.33–85.36 and 85.4) to prevent or treat breast cancer. The least common of the operations and procedures shown in Table 2 was a pulmectomy, an operation to remove part or all of a lung (codes 32.3-32.5; segmental resection of lung, lobectomy of lung and complete pneumonectomy).

Figure 2: In-patient average length of stay for neoplasms, 2011 and 2016 (days) Source: Eurostat (hlth_co_inpst)
Relative to population size, more than 1 000 colonoscopies per 100 000 inhabitants were performed in 2015 in Sweden, Luxembourg, the United Kingdom, Ireland, Malta and Belgium (2014 data), exceeding two thousand per 100 000 inhabitants in Croatia and France (2014 data) and peaking at 2 900 thousand per 100 000 inhabitants in Denmark. Fewer than 100 colonoscopies per 100 000 inhabitants were performed in Finland and Hungary. Cyprus recorded the lowest frequency of colectomies (18.6 per 100 000 inhabitants), while the highest ratio was recorded in Germany (107.7 colectomies per 100 000 inhabitants), with Denmark, Hungary and Austria also reporting relatively high rates. Germany also reported the highest frequency of pulmectomies, with 39.1 of these operations per 100 000 inhabitants in 2015, followed by Hungary (26.1 pulmectomies per 100 000 inhabitants). In five of the EU Member States for which data are available, this procedure was performed 10 or fewer times per 100 000 inhabitants, with these low frequencies reported in Sweden, Slovenia, Malta, Cyprus and most notably Finland. In 2016, partial or total mastectomies were most commonly performed in Belgium, the only EU Member State to record in excess of 200 of these procedures per 100 000 inhabitants, while the next highest rates were around 150 per 100 000 inhabitants in Italy, Croatia and Denmark. Poland, Cyprus and Romania recorded the lowest frequency for these procedures, with less than 50 partial or total mastectomies per 100 000 inhabitants in 2016.

Broad increase in the frequency (relative to population) in operations and procedures

Between 2010 and 2015, most EU Member States (subject to data availability) reported increases in the frequency with which these operations and procedures were performed (Table 2). The most rapid increases were
normally reported for colonoscopies, with increases between 30 % and 110 % in Croatia (2012-2015), Lithuania, Romania, Finland, Denmark, Malta (2012-2015) and the United Kingdom; only Slovenia and Italy reported falls in frequency (relative to population size).

For colectomies, the largest increase in frequency of operations and procedures was reported by Cyprus (2012-2015; note that there is a break in series in Cypriot data for all types of operations and procedures shown in Table 2) and increases between 10 % and 30 % were observed in Romania, Malta (2012-2015), Lithuania, Finland, Denmark and Spain, whereas around half of the EU Member States with data available recorded decreases in the frequency of these operations, most notably in Luxembourg (2012-2015).

For pulmectomies, particularly large increases were reported by Croatia (2012-2015), Spain, Romania, Luxembourg (2012-2015), Ireland, the United Kingdom and Lithuania in contrast to decreases in France (2010-2014), Slovenia, Finland, Malta (2012-2015) and Hungary.

For partial or total mastectomies, more than half of the EU Member States for which data are available reported increases in the frequency of these operations between 2011 and 2016: the largest increases were reported by Cyprus (more than doubling between 2010 and 2016; note the break in series) and Romania (up 86 %), while the decreases were all relatively small, less than 10 %.

**Healthcare personnel and equipment**

Oncologists are doctors specialising in the diagnosis or treatment of cancer, for example through medical practices such as radiation therapy or through surgery. In 2015, there were around 18 200 oncologists in the EU Member States for which data were available (2014 data for Denmark, Finland and Sweden, 2013 data for the Czech Republic; no recent data for Croatia, Hungary, the Netherlands, Austria and Slovakia).
Among the six largest EU Member States (Germany, France, the United Kingdom, Italy, Spain and Poland), the number of oncologists in 2015 ranged from 968 in France to 4 333 in Italy, equivalent to 1.5 oncologists per 100 000 inhabitants in France and 7.1 oncologists per 100 000 inhabitants in Italy (see Table 3). Across those Member States for which data are available (see Table 3), only Italy (2009 to 2015) and Latvia (2010 to 2015) reported a fall in the number of oncologists relative to their number of inhabitants during the most recent five-year period for which data are available; there was also a similar pattern in Iceland. Relative to the number of inhabitants, the largest increases in the number of oncologists were recorded in Poland (3.4 additional oncologists per 100 000 inhabitants between 2010 and 2015; note the definition differs for 2010), followed by Estonia and Bulgaria (1.8 additional oncologists per 100 000 inhabitants in both countries; note there is a break in series for Estonian data).

Oncological day care involves treatments that do not require an overnight stay, for example day case chemotherapy, blood and platelet transfusions, tests, removal of sutures (stitches), injections and dressings. Although only a limited amount of data are available (see Table 3 for data availability), the range in availability of day care places in 2016 was large, from 0.2 places per 100 000 inhabitants in Slovakia to 13.2 places per 100 000 inhabitants in Belgium and 18.3 places per 100 000 inhabitants in Spain.

Table 3: Cancer related healthcare personnel and equipment, 2010, 2011, 2015 and 2016 (per 100 000 inhabitants)

Source: Eurostat (hlth_rs_spec), (hlth_rs_tech) and (hlth_rs_equi)
Radiation therapy equipment covers machines used for treatment with x-rays or radionuclides. These include linear accelerators, Cobalt-60 units, Caesium-137 therapy units, low to orthovoltage x-ray units, high dose and low dose rate brachytherapy units and conventional brachytherapy units: note that some of these machines may also be used for treatments other than cancer. In 2016, there were more than 3 600 radiation therapy units in the EU Member States for which data are available (2015 data for Italy; no data for the Netherlands; note that data for Belgium, Germany, France, Portugal and Sweden refer only to equipment in hospitals), with the largest numbers in France (717) and the United Kingdom (605). Relative to population size, radiation therapy equipment was most common in Belgium, Denmark, Slovakia and France, while it was least common in Portugal, Poland and Romania.

Source data for tables and graphs
- Cancer statistics: tables and figures

Data sources

Key concepts
An in-patient or day care patient is discharged from hospital when formally released after a procedure or course of treatment (episode of care). A discharge may occur because of the finalisation of treatment, signing out against medical advice, transfer to another healthcare institution, or because of death.

The number of deaths from a particular cause of death can be expressed relative to the size of the population. A standardised (rather than crude) death rate can be compiled which is independent of the age and sex structure of a population: this is done as most causes of death vary significantly by age and according to sex and the standardisation facilitates comparisons of rates over time and between countries.

Causes of death
Statistics on causes of death provide information on mortality patterns, supplying information on developments over time in the underlying causes of death. This source is documented in more detail in the background article Causes of death statistics - methodology which provides information on the scope of the data, its legal basis, the methodology employed, as well as related concepts and definitions.

Causes of death are classified according to the European shortlist (86 causes), which is based on the International Statistical Classification of Diseases and Related Health Problems (ICD). Chapter II of the ICD covers neoplasms:
- C00-C97 Malignant neoplasms;
- D00-D09 In situ neoplasms;
- D10-D36 Benign neoplasms;
- D37-D48 Neoplasms of uncertain or unknown behaviour.

Please refer to this background information document for country specific notes on this data collection.

Healthcare resources and activities
For hospital discharges and the length of stay in hospitals, the International Shortlist for Hospital Morbidity Tabulation (ISHMT) is used to classify data from 2000 onwards; Chapter II covers neoplasms:
- Malignant neoplasm of colon, rectum and anus (0201);
- Malignant neoplasms of trachea, bronchus and lung (0202);
- Malignant neoplasms of skin (0203);
• Malignant neoplasm of breast (0204);
• Malignant neoplasm of uterus (0205);
• Malignant neoplasm of ovary (0206);
• Malignant neoplasm of prostate (0207);
• Malignant neoplasm of bladder (0208);
• Other malignant neoplasms (0209);
• Carcinoma in situ (0210);
• Benign neoplasm of colon, rectum and anus (0211);
• Leiomyoma of uterus (0212);
• Other benign neoplasms and neoplasms of uncertain or unknown behaviour (0213).

Please refer to this background information document for country specific notes on this data collection.

Statistics on healthcare resources (such as personnel and medical equipment) and healthcare activities (such as information on surgical operations and procedures and hospital discharges) are documented in the background article Healthcare non-expenditure statistics - methodology which provides information on the scope of the data, its legal basis, the methodology employed, as well as related concepts and definitions.

For surgical operations and procedures the International Classification of Diseases — clinical modification (ICD-9-CM) is used:
• Pulmectomy (32.3-32.5);
• Colonoscopy (45.22-45.25, 45.42 and 45.43);
• Colectomy (45.7 and 45.8);
• Partial excision of a mammary gland (85.20-85.23);
• Total mastectomy (85.33-85.36 and 85.4).

Please refer to this background information document for country specific notes on this data collection.

Note on tables: the symbol ‘:’ is used to show where data are not available.

Context

Although significant advances have been made in the fight against this group of diseases, cancer remains a key public health concern and a tremendous burden on EU societies — it is the second largest cause of death in the EU-28. The ambitious goal set by the European Commission Communication on Action Against Cancer: European Partnership (adopted in June 2009) is to reduce cancer incidence by 15 % by 2020.

By way of Decision 2014/C 167/05, the European Commission established an expert group on Cancer Control with the aims to: assist the European Commission in the drawing up of legal instruments and policy documents, guidelines and recommendations on cancer control; advise in the implementation, monitoring, evaluation and dissemination of the results of EU and national measures and on international cooperation; facilitate coordination and exchange of information between EU Member States; provide an overview of EU and national policies; gather information about relevant experience, policies and practices of the Member States and other parties.

CanCon — short for cancer control — was a joint action initiative, co-funded by participating organisations, institutes, universities and health care units, and the EU. CanCon developed a European Guide on Quality Improvement in Comprehensive Cancer Control.
Other articles

Online publications
- Health in the European Union – facts and figures
- Disability statistics

Health status — selected diseases and related health problems
- Specific cancers

Causes of death
- Causes of death
- Causes of death of the elderly

Healthcare activities
- Hospital discharges and length of stay
- Surgical operations and procedures

Methodology
- Causes of death statistics
- Healthcare non-expenditure statistics

General health statistics articles
- Health statistics introduced
- Health statistics at regional level
- The EU in the world — health

Publications
- More than 670 000 persons died in the EU from respiratory diseases — News release
- 1 in 4 deaths caused by cancer in the EU28 — Lung cancer main fatal cancer — News release
- Health statistics — Atlas on mortality in the European Union

Main tables
- Health care (t__hlth__care)
- Causes of death (t__hlth__cdeath)

Database
- Health care (hlth__care)
  Health care resources (hlth__res)
    Health care staff (hlth__staff)
    Health care facilities (hlth__facil)
  Health care activities (hlth__act)
    Hospital discharges and length of stay for inpatient and curative care (hlth__co_dischls)
    Hospital discharges - national data (hlth__hosd)
    Length of stay in hospital (hlth__hostay)
    Operations, procedures and treatment (hlth__oper)
- Causes of death (hlth__cdeath)
  General mortality (hlth__cd_gmor)
    Causes of death - deaths by country of residence and occurrence (hlth__cd_aro)
    Causes of death - standardised death rate by residence (hlth__cd_asdr2)
Dedicated section

- Health
- Health care
- Causes of death

Methodology

- Causes of death statistics (ESMS metadata file — hlth_cdeath_esms)
- Healthcare activities (ESMS metadata file — hlth_act)
- Healthcare resources (ESMS metadata file — hlth_res)

External links

- Cancer control Joint Action (CanCon)
- European Commission — Directorate-General for Health and Food Safety — Public health, see:
  - European Commission — Directorate-General for Health and Food Safety — Non-communicable diseases
    - European Commission — Directorate-General for Health and Food Safety — Non-communicable diseases — Cancer
    - European Commission — Directorate-General for Health and Food Safety — European core health indicators (ECHI)

- Joint OECD / European Commission report 'Health at a Glance: Europe'
- OECD — Health policies and data
- WHO Global Health Observatory (GHO) — Mortality and global health estimates
- World Health Organisation (WHO) — Health systems

View this article online at http://ec.europa.eu/eurostat/statistics-explained/index.php/Cancer_statistics