

# Cancer in Scotland

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Information Services Division  
NHS National Services Scotland

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## Cancer incidence

This section was last updated in April 2014. It will be updated again in April 2015. This section is updated annually, alongside the Cancer Incidence National Statistics publication.

### Note about the 2013 European Standard Population

The 2013 European Standard Population (ESP2013) has been used to calculate the European Age Standardised Rates (EASRs) within this publication. The European Standard Population (ESP), which was first used in 1976, was revised in 2013. Figures using ESP1976 and ESP2013 are not comparable. Therefore, findings from this publication are not comparable with previous ISD reports. Further detail regarding this change and a worked example of EASRs using both ESP1976 and ESP2013 can be found in Appendix A1 of the latest [Cancer Incidence publication](#).

Approximately 14,600 males and 15,800 females were diagnosed with cancer in 2012. Non-melanoma skin cancers (NMSC), of which there were 10,872 registered in 2012, are excluded from the analysis of all cancers combined for three main reasons:

- In the interests of external comparison, because not all cancer registries collect data on NMSC;
- Because they are so common, only the first occurrence of a basal cell carcinoma (the most common type of NMSC) is collected in Scotland;
- Although numerically important in terms of NHS workload, NMSC is rarely fatal.

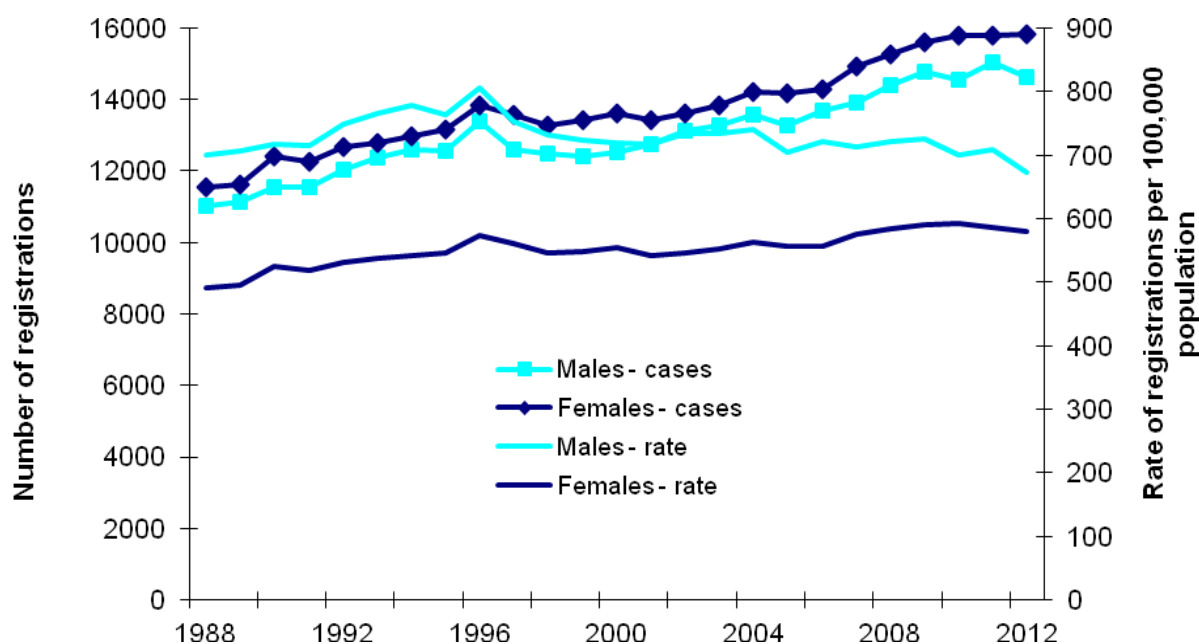
Excluding NMSC, the number of cancers diagnosed in Scotland has increased over the last 10 years from 26,743 cases in 2002 to 30,450 in 2012.

For males, the most common cancers are prostate, lung and colorectal cancers (Table 1), collectively accounting for 52% of cancers in men. For

females, the most common cancers are breast, lung and colorectal cancers (Table 2), accounting for 56% of cancer in women.

Over the decade up to 2012, the age-standardised incidence rate of cancer has fallen for males (a 5% decrease) and shows a significant, increasing trend for females (8% increase) (Figure 1).

**Figure 1. New cancer<sup>1</sup> registrations in Scotland, 1988-2012:  
number of cases and age standardised rate<sup>2</sup>  
(European Age Standardised Rate – using ESP2013<sup>2</sup>)**



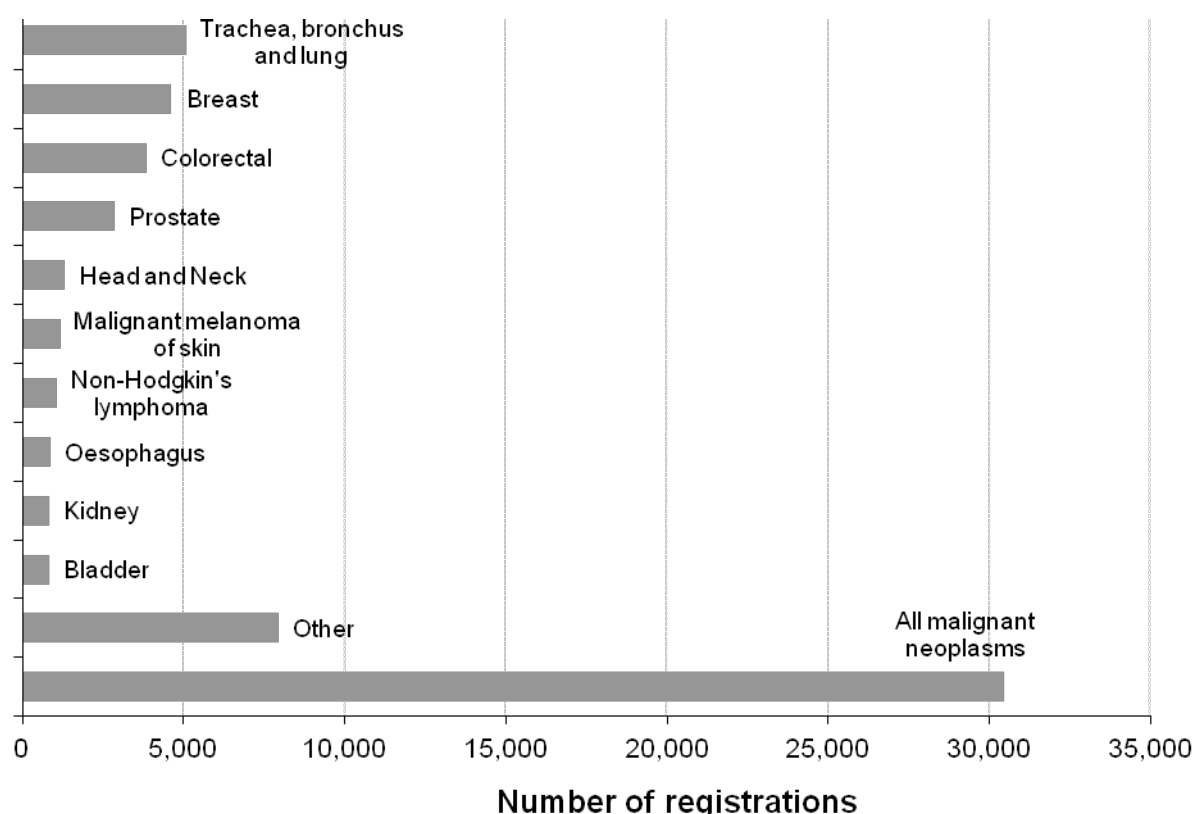
Source: Scottish Cancer Registry

1 All cancers excluding non-melanoma skin cancers (ICD-10 C00-C97 excl C44)

2 The European Standard Population (ESP), which was first used in 1976, was revised in 2013. Figures using ESP1976 and ESP2013 are not comparable. The European Age Standardised Rate (EASR) is calculated using ESP2013 and 5 year age groups 0-4, 5-9 up to an upper age group of 90+. See [Cancer Incidence publication](#) for further details.

For both males and females in Scotland combined, lung cancer is still the most common cancer overall (Figure 2), with 5,070 cases diagnosed in 2012 (17% of all cancers), compared to 4,623 cases (15%) of breast cancer and 3,849 cases of colorectal cancer (13%). The ranks and percentages of the three most common cancers are unchanged from 2011.

**Figure 2. Most Common Cancers in Scotland, 2012; all persons**



All cancers excluding non-melanoma skin cancers (ICD-10 C00-C97 excl C44)  
Source: Scottish Cancer Registry

Table 1 shows the numbers of cases in 2012, percentage frequency and estimated percentage change in age-adjusted incidence rates over ten years for the most common cancers. A p-value of less than 0.05 for the 10 year change indicates that this is statistically significant.

When attempting to interpret trends in cancer incidence, it is important to remember that recent patterns of cancer are, for the most part, likely to reflect trends in the prevalence of risk (and protective) factors going back several decades. The commentary below relates to changes in the incidence rates of different types of cancer over the last ten years.

### Breast cancer

Breast cancer is the most common cancer in women. Over the last decade the incidence rate has increased by 11%; this is partly due to increased detection by the Scottish Breast Screening Programme, which has seen a rise in attendance over the same time period, and an extension in the age range invited for screening to include women up to the age of 70 years, phased in over the 3-year period beginning 1st April 2003. However, increases in the incidence of breast cancer might also be anticipated with higher prevalence of known risk factors among the female population, such as increases in the mother's age at the birth of her first child, decreases in family size, increases in post-menopausal obesity, and increases in alcohol consumption.

### **Prostate cancer**

Prostate cancer is the most common cancer in men with a relative frequency of 20%. The incidence rate of prostate cancer has decreased slightly by 2% over the last decade.

### **Lung cancer**

The long-term decline seen in the incidence rate of lung cancer in males, the second most common cancer in men, has continued, with a significant fall in the incidence rate of 16% over the last ten years. Lung cancer incidence rates in females increased by 14% over the last ten years. To a large extent, this trend reflects historic trends in the prevalence of smoking, which have differed between men and women.

### **Colorectal cancer**

Colorectal cancer has increased significantly in women (by 6%) with a lesser, non-significant increase in men (around 1%). Modifiable risk factors for colorectal cancer are thought to include diet, lack of physical activity and long-term smoking. However, some of the recent observed increase in incidence may be associated with the introduction of the nationwide bowel screening programme.

### **Cancer of the corpus uteri**

The incidence of cancer of the body of the uterus (corpus uteri) has increased significantly (by 32%) over the 10-year period 2002-2012. The majority of cancers at this anatomical site affect the endometrium or lining of the womb. The increase in incidence may be due, at least in part, to longstanding changes in fertility (since childbearing appears to protect against endometrial cancer) and increases in levels of obesity (which increase risk). A further contributing factor may be a decrease in rates of hysterectomy, which leaves a larger population at risk of developing uterine cancer.

### **Malignant melanoma of the skin**

Malignant melanoma of the skin is the fifth most common cancer in women and seventh most common cancer in men. Incidence rates increased over the last decade by 43% in males and 30% in females. The primary recognised risk factor for melanoma of the skin is exposure to natural and artificial sunlight, especially but not exclusively at a young age.

### **Bladder cancer**

The decline in bladder cancer incidence since 1998 may be, at least in part, an artefact due to a change in coding practice across cancer registries in the UK. Around a quarter of bladder tumours are no longer coded as invasive bladder cancers. This decrease is large enough to have an impact on the figures for all cancers combined.

### **Ovarian cancer**

The 12% decrease observed in ovarian cancer incidence may be partly due to increased use of the oral contraceptive pill from the 1960s onwards, since this appears to protect against the development of ovarian cancer.

### **Oesophageal cancer**

After a prolonged period of increasing incidence, oesophageal cancer now seems to be decreasing in incidence in both sexes. Established risk factors for oesophageal cancer include smoking, alcohol misuse, obesity, and chronic gastro-oesophageal reflux disease. Oesophageal cancer does not appear in table 1 for females as it is not one of the ten most common cancers for women.

### **Non-Hodgkin's lymphoma**

Non-Hodgkin's lymphoma (NHL) has increased significantly in females (by 10%), with a lesser, non-significant increase in males (4%). Although immunosuppression has been associated with the development of NHL, much has still to be understood about its aetiology and so the reasons for the observed trends in incidence are unclear.

### **Pancreatic cancer**

There have been significant increases in incidence of pancreatic cancer in both males (15%) and females (13%). Again, the aetiology of pancreatic cancer is poorly understood, although smoking is one reasonably well-established risk factor. Pancreatic cancer does not appear in table 1 for males as it is not one of the ten most common cancers for men.

### **Kidney cancer**

Cancers of the kidney continue to show significant increases in incidence rates over the last 10 years of 22% and 44% for males and females, respectively. The increase has occurred primarily in cancers of the renal parenchyma (ICD-10 C64) rather than of the renal pelvis (C65). The reason for this increase is not clear. Established risk factors include obesity and smoking, but advances in medical imaging may also have led to an increase in incidental diagnosis of some tumours.

### **Stomach cancer**

Cancer of the stomach continues to show highly significant decreases in incidence in both males (30%) and females (28%). This most probably reflects a decrease in prevalence of infection with the bacterium *Helicobacter pylori* (perhaps as a result of improvements in social conditions and widespread use of antibiotics). People infected with *Helicobacter pylori* have an increased risk of developing stomach cancer. The introduction of refrigeration has also probably had an effect on incidence as it reduced the need for potentially carcinogenic food preservatives. Stomach cancer does not appear in table 1 for females as it is not one of the ten most common cancers for women.

**Table 1. Most common cancers in Scotland in 2012**

| <b>Males</b>       |  |               |                  |                                     |                |
|--------------------|--|---------------|------------------|-------------------------------------|----------------|
| <b>Rank</b>        | <b>ICD-10 site grouping</b>                                | <b>Number</b> | <b>Frequency</b> | <b>10 year % change<sup>1</sup></b> | <b>p-value</b> |
| 1                  | Prostate (C61)   | 2,857         | 19.6%            | -2.4                                | 0.5607         |
| 2                  | Trachea, bronchus and lung (C33-C34)                       | 2,573         | 17.6%            | -16.3                               | <0.0001        |
| 3                  | Colorectal (C18-C20)                                       | 2,100         | 14.4%            | +1.2                                | 0.6182         |
| 4                  | Head and Neck (C00-C14, C30-C32)                           | 892           | 6.1%             | +7.0                                | 0.0666         |
| 5                  | Oesophagus (C15)   | 579           | 4.0%             | -8.5                                | 0.0147         |
| 6                  | Bladder (C67)  | 559           | 3.8%             | -15.1                               | 0.0005         |
| 7                  | Malignant melanoma of skin (C43)                           | 549           | 3.8%             | +43.2                               | <0.0001        |
| 8                  | Non-Hodgkin's lymphoma (C82-C85)                           | 544           | 3.7%             | +3.6                                | 0.3294         |
| 9                  | Kidney (C64-C65)   | 479           | 3.3%             | +22.4                               | <0.0001        |
| 10                 | Stomach (C16)  | 450           | 3.1%             | -30.4                               | <0.0001        |
|                    | Other malignant neoplasms                                  | 3,029         | 20.7%            | x                                   | x              |
|                    | All malignant neoplasms excluding non-melanoma skin cancer | 14,611        | 100.0%           | -4.6                                | 0.0002         |
| <b>Females</b>     |  |               |                  |                                     |                |
| <b>Rank</b>        | <b>ICD-10 site grouping</b>                                | <b>Number</b> | <b>Frequency</b> | <b>10 year % change<sup>1</sup></b> | <b>p-value</b> |
| 1                  | Breast (C50)   | 4,595         | 29.0%            | +11.1                               | <0.0001        |
| 2                  | Trachea, bronchus and lung (C33-C34)                       | 2,497         | 15.8%            | +14.2                               | <0.0001        |
| 3                  | Colorectal (C18-C20)                                       | 1,749         | 11.0%            | +5.8                                | 0.0413         |
| 4                  | Corpus uteri (C54)   | 668           | 4.2%             | +31.7                               | <0.0001        |
| 5                  | Malignant melanoma of skin (C43)                           | 628           | 4.0%             | +30.4                               | <0.0001        |
| 6                  | Ovary (C56)  | 610           | 3.9%             | -11.8                               | 0.0001         |
| 7                  | Non-Hodgkin's lymphoma (C82-C85)                           | 524           | 3.3%             | +10.4                               | 0.0181         |
| 8                  | Head and Neck (C00-C14, C30-C32)                           | 423           | 2.7%             | +16.2                               | 0.0115         |
| 9                  | Pancreas (C25)   | 386           | 2.4%             | +13.3                               | 0.0142         |
| 10                 | Kidney (C64-C65)   | 359           | 2.3%             | +43.8                               | <0.0001        |
|                    | Other malignant neoplasms                                  | 3,400         | 21.5%            | x                                   | x              |
|                    | All malignant neoplasms excluding non-melanoma skin cancer | 15,839        | 100.0%           | +8.0                                | <0.0001        |
| <b>All persons</b> |  |               |                  |                                     |                |
| <b>Rank</b>        | <b>ICD-10 site grouping</b>                                | <b>Number</b> | <b>Frequency</b> | <b>10 year % change<sup>1</sup></b> | <b>p-value</b> |
| 1                  | Trachea, bronchus and lung (C33-C34)                       | 5,070         | 16.7%            | -5.2                                | 0.3422         |
| 2                  | Breast (C50) <sup>2</sup>                                  | 4,623         | 15.2%            | x                                   | x              |
| 3                  | Colorectal (C18-C20)                                       | 3,849         | 12.6%            | +3.0                                | 0.0322         |
| 4                  | Prostate (C61) <sup>2</sup>                                | 2,857         | 9.4%             | x                                   | x              |
| 5                  | Head and Neck (C00-C14, C30-C32)                           | 1,315         | 4.3%             | +9.4                                | 0.0001         |
| 6                  | Malignant melanoma of skin (C43)                           | 1,177         | 3.9%             | +36.7                               | <0.0001        |
| 7                  | Non-Hodgkin's lymphoma (C82-C85)                           | 1,068         | 3.5%             | +6.5                                | 0.0110         |
| 8                  | Oesophagus (C15)   | 887           | 2.9%             | -9.4                                | 0.0085         |
| 9                  | Kidney (C64-C65)   | 838           | 2.8%             | +29.7                               | <0.0001        |
| 10                 | Bladder (C67)  | 832           | 2.7%             | -13.1                               | 0.0254         |
|                    | Other malignant neoplasms                                  | 7,934         | 26.1%            | x                                   | x              |
|                    | All malignant neoplasms excluding non-melanoma skin cancer | 30,450        | 100.0%           | +0.8                                | 0.0019         |

<sup>1</sup> 'x' = not applicable.

<sup>2</sup> Estimated 10-year change in age-adjusted incidence rates, calculated using Poisson regression analyses.

<sup>3</sup> Percentage change in incidence is not shown here for cancers occurring mainly or only in one sex.

Source: Scottish Cancer Registry, ISD

## Further information

A summary table showing numbers of cases and age-standardised incidence rates for each cancer, sex and year (2003-2012) can be found at [http://www.isdscotland.org/Health-Topics/Cancer/Publications/2014-04-29/cancer\\_incandmort\\_summary.xls](http://www.isdscotland.org/Health-Topics/Cancer/Publications/2014-04-29/cancer_incandmort_summary.xls)

Detailed numbers and rates by age band, sex and health board for approximately 50 cancer sites and for all cancers combined over the period 1988-2012 can be found within the cancer-specific categories listed on <http://www.isdscotland.scot.nhs.uk/Health-Topics/Cancer/>.

A summary of the most recent Cancer Incidence Projections (2010) can be found at <http://www.isdscotland.org/Health-Topics/Cancer/Cancer-Statistics/Cancer-Incidence-Projections-Scotland-to-2020.pdf>.

A more comprehensive report from 2001 is available at <http://www.scotland.gov.uk/Publications/2001/05/9056/File-1>

Cancer incidence statistics for England can be found on the National Statistics hub at <http://www.ons.gov.uk/ons/rel/vsob1/cancer-statistics-registrations--england--series-mb1-no--42--2011/stb-cancer-statistics-registrations-2011.html>

Comparative data on incidence and mortality for the UK can be found in the UK Cancer e-Atlas produced by the National Cancer Intelligence Network: [http://www.ncin.org.uk/cancer\\_information\\_tools/eatlas/](http://www.ncin.org.uk/cancer_information_tools/eatlas/)



## Lifetime risk of cancer

This section was last updated in April 2013. It will next be updated in April 2015.

It is estimated that more than 2 in 5 people in Scotland will develop some form of cancer during their lifetime, and that around 1 in 8 males and 1 in 11 females will develop some form of cancer before the age of 65 (Table 2). Having survived to age 65 without cancer, the risk of getting cancer subsequently is 1 in 3 for males and 2 in 7 for females.

**Table 2: Risk of being diagnosed with cancer over a lifetime (up to the age of 90), 2007-2011**

| Cancer site / type (ICD-10)  | Males  |                             |                        | Females                                      |                             |                        |
|--|--|-----------------------------|------------------------|--|-----------------------------|------------------------|
|  | % of cohort that develop cancer up to age 64 | Lifetime risk over lifetime | Lifetime risk 1 in ... | % of cohort that develop cancer up to age 64 | Lifetime risk over lifetime | Lifetime risk 1 in ... |
| All malignant neoplasms excl non-melanoma skin cancer <sup>1</sup> | 7.6  | 41.7                        | 2.4                    | 10.9   | 39.7                        | 2.5                    |
| Head and Neck (C00-C14, C30-C32)                                   | 0.7  | 2.3                         | 43.1                   | 0.3  | 1.0                         | 105.0                  |
| Oral cavity (C01-C06)  | 0.3  | 0.8                         | 128.8                  | 0.1  | 0.5                         | 211.6                  |
| Oesophagus (C15)   | 0.3  | 1.8                         | 56.2                   | 0.1  | 0.9                         | 110.1                  |
| Stomach (C16)  | 0.2  | 1.6                         | 63.6                   | 0.1  | 0.8                         | 119.9                  |
| Colorectal (C18-C20)   | 1.0  | 6.9                         | 14.6                   | 0.8  | 5.2                         | 19.3                   |
| Colon (C18)  | 0.5  | 4.5                         | 22.4                   | 0.5  | 3.8                         | 26.6                   |
| Rectum and rectosigmoid junction (C19-C20)                         | 0.4  | 2.5                         | 39.9                   | 0.3  | 1.5                         | 67.6                   |
| Liver and intrahepatic bile ducts (C22)                            | 0.2  | 0.9                         | 108.7                  | 0.1  | 0.4                         | 256.7                  |
| Pancreas (C25)   | 0.2  | 1.2                         | 84.8                   | 0.1  | 1.1                         | 89.5                   |
| Larynx (C32)   | 0.2  | 0.7                         | 135.7                  | 0.0  | 0.2                         | 586.1                  |
| Trachea, bronchus and lung (C33-C34)                               | 0.9  | 8.6                         | 11.6                   | 0.8  | 7.4                         | 13.5                   |
| Bone and connective tissue (C40-C41, C47, C49)                     | 0.1  | 0.3                         | 305.4                  | 0.1  | 0.2                         | 476.8                  |
| Malignant melanoma of the skin (C43)                               | 0.5  | 1.5                         | 65.0                   | 0.8  | 1.7                         | 57.3                   |
| Female breast (C50, females)                                       | x  | x                           | x                      | 4.4  | 11.6                        | 8.7                    |
| Cervix uteri (C53)   | x  | x                           | x                      | 0.6  | 0.9                         | 112.0                  |
| Corpus uteri (C54)   | x  | x                           | x                      | 0.5  | 1.9                         | 53.6                   |
| Ovary (C56)  | x  | x                           | x                      | 0.6  | 1.8                         | 55.1                   |
| Prostate (C61)   | 0.9  | 9.5                         | 10.5                   | x  | x                           | x                      |
| Testis (C62)   | 0.5  | 0.6                         | 181.4                  | x  | x                           | x                      |
| Kidney (C64-C65)   | 0.4  | 1.5                         | 64.6                   | 0.2  | 1.1                         | 93.7                   |
| Bladder (C67)  | 0.1  | 1.8                         | 56.6                   | 0.1  | 0.8                         | 132.5                  |
| Brain and other CNS (C70-C72, C75.1, C75.3)                        | 0.3  | 0.7                         | 139.5                  | 0.2  | 0.5                         | 182.6                  |
| Thyroid (C73)  | 0.1  | 0.2                         | 605.2                  | 0.3  | 0.4                         | 233.0                  |
| Hodgkin's disease (C81)  | 0.2  | 0.3                         | 355.4                  | 0.1  | 0.2                         | 488.8                  |
| Non-Hodgkin's lymphoma (C82-C85)                                   | 0.4  | 1.6                         | 62.7                   | 0.3  | 1.5                         | 69.0                   |
| Multiple myeloma and malignant plasma cell neoplasms (C90)         | 0.1  | 0.7                         | 141.1                  | 0.1  | 0.6                         | 180.3                  |
| Leukaemias (C91-C95)   | 0.3  | 1.2                         | 81.3                   | 0.2  | 0.8                         | 124.9                  |

<sup>1</sup> C00-C96 excl C44 (C97 is not used by the Scottish Cancer Registry).  
Source: Scottish Cancer Registry, ISD

x' = not applicable.  
Data extracted: March 2013

For the most common cancers, for males, the lifetime risk of developing lung cancer is estimated as 1 in 12, of prostate cancer 1 in 11, and 1 in 15 men are estimated to develop colorectal cancer in their lifetime. For females, the estimated lifetime risk is 1 in 9 for breast cancer, 1 in 14 for lung cancer, and 1 in 19 for colorectal cancer.

## Prevalence of cancer

This section was last updated in April 2013. It will next be updated in April 2015.

Overall, 2.7% of men and 3.6% of women in Scotland are living with cancer (2,731 and 3,567 per 100,000 population, Table 3 and [All Cancer Types prevalence](#)).

**Table 3: Cancer survivors (prevalence) at 31 December 2011, by time since diagnosis**

| <b>Males</b>   |              |                |                 |                  |                      |
|--|--------------|----------------|-----------------|------------------|----------------------|
| Prevalence: rate per 100,000 in population                         |              |                |                 |                  |                      |
| Cancer site / type (ICD-10)  | Up to 1 year | > 1 to 5 years | > 5 to 10 years | > 10 to 20 years | Total up to 20 years |
| All malignant neoplasms excl non-melanoma skin cancer <sup>1</sup> | 420.0        | 1,005.1        | 701.8           | 603.8            | 2,730.8              |
| Prostate (C61)   | 104.8        | 343.3          | 263.8           | 128.2            | 840.2                |
| Colorectal (C18-C20)   | 72.3         | 190.1          | 120.4           | 115.0            | 497.8                |
| Colon (C18)  | 45.4         | 120.8          | 73.2            | 71.5             | 310.8                |
| Head and Neck (C00-C14, C30-C32)                                   | 27.4         | 71.3           | 52.4            | 46.8             | 198.0                |
| Rectum, incl rectosigmoid junction (C19-C20)                       | 27.7         | 71.1           | 49.2            | 45.2             | 193.2                |
| Malignant melanoma of the skin (C43)                               | 21.6         | 63.2           | 48.3            | 49.1             | 182.2                |
| Bladder (C67)  | 17.0         | 37.7           | 30.6            | 57.7             | 142.9                |
| Testis (C62)   | 7.6          | 30.9           | 37.6            | 64.4             | 140.5                |
| Non-Hodgkin's lymphoma (C82-C85)                                   | 17.5         | 47.7           | 38.6            | 35.6             | 139.4                |
| Trachea, bronchus and lung (C33-C34)                               | 49.8         | 50.6           | 20.0            | 18.2             | 138.6                |
| Kidney (C64-C65)   | 15.3         | 42.1           | 25.6            | 21.8             | 104.8                |
| Leukaemias (C91-C95)   | 11.9         | 31.4           | 28.3            | 29.5             | 101.1                |
| Larynx (C32)   | 8.6          | 23.9           | 19.7            | 20.9             | 73.2                 |
| Oral Cavity (C01-C06)  | 9.1          | 24.1           | 17.2            | 11.4             | 61.8                 |
| Hodgkin's disease (C81)  | 3.8          | 12.2           | 11.9            | 18.7             | 46.5                 |
| Stomach (C16)  | 10.4         | 13.6           | 8.8             | 8.9              | 41.7                 |
| Oesophagus (C15)   | 14.1         | 14.0           | 6.9             | 6.0              | 41.0                 |
| Multiple myeloma, mal plasma cell neo (C90)                        | 7.1          | 17.1           | 7.4             | 3.0              | 34.6                 |
| Bone and connective tissue (C40-C41, C47, C49)                     | 3.5          | 10.0           | 9.1             | 11.1             | 33.8                 |
| Brain and other CNS (C70-C72, C75.1-C75.3)                         | 6.5          | 8.1            | 6.5             | 9.2              | 30.3                 |
| Thyroid (C73)  | 1.7          | 7.5            | 4.8             | 6.9              | 20.9                 |
| Liver and intrahepatic bile ducts (C22)                            | 7.0          | 6.9            | 1.9             | 1.4              | 17.2                 |
| Pancreas (C25)   | 5.8          | 3.8            | 1.1             | 1.1              | 11.7                 |

<sup>1</sup> C00-C96 excl C44 (C97 is not used by the Scottish Cancer Registry).  
Source: Scottish Cancer Registry, ISD

Data extracted: March 2013

| <b>Females</b>   |              |                |                 |                  |                      |
|--|--------------|----------------|-----------------|------------------|----------------------|
| Prevalence: rate per 100,000 in population                         |              |                |                 |                  |                      |
| Cancer site / type (ICD-10)  | Up to 1 year | > 1 to 5 years | > 5 to 10 years | > 10 to 20 years | Total up to 20 years |
| All malignant neoplasms excl non-melanoma skin cancer <sup>1</sup> | 441.3        | 1,174.1        | 920.6           | 1,031.0          | 3,567.0              |
| Female breast (C50, females)                                       | 159.4        | 513.6          | 452.6           | 500.9            | 1,626.5              |
| Colorectal (C18-C20)   | 52.8         | 144.4          | 103.1           | 113.2            | 413.5                |
| Colon (C18)  | 37.2         | 103.1          | 71.1            | 79.8             | 291.1                |
| Malignant melanoma of the skin (C43)                               | 22.8         | 83.8           | 68.6            | 82.7             | 258.0                |
| Corpus uteri (C54)   | 22.1         | 71.7           | 58.0            | 69.4             | 221.2                |
| Ovary (C56)  | 16.7         | 45.7           | 36.1            | 47.1             | 145.6                |
| Trachea, bronchus and lung (C33-C34)                               | 49.0         | 54.2           | 19.8            | 15.3             | 138.4                |
| Cervix uteri (C53)   | 10.6         | 34.3           | 32.1            | 61.2             | 138.2                |
| Non-Hodgkin's lymphoma (C82-C85)                                   | 14.9         | 46.5           | 35.0            | 33.4             | 129.8                |
| Rectum, incl rectosigmoid junction (C19-C20)                       | 15.8         | 42.3           | 32.8            | 34.9             | 125.8                |
| Head and Neck (C00-C14, C30-C32)                                   | 11.5         | 28.8           | 22.7            | 21.9             | 84.9                 |
| Kidney (C64-C65)   | 10.5         | 28.3           | 15.3            | 16.5             | 70.5                 |
| Leukaemias (C91-C95)   | 6.6          | 20.2           | 21.1            | 21.9             | 69.7                 |
| Thyroid (C73)  | 6.5          | 18.8           | 15.6            | 22.6             | 63.6                 |
| Bladder (C67)  | 6.2          | 12.7           | 11.0            | 23.9             | 53.8                 |
| Oral Cavity (C01-C06)  | 5.6          | 14.3           | 9.8             | 8.8              | 38.6                 |
| Hodgkin's disease (C81)  | 2.2          | 7.7            | 9.1             | 13.3             | 32.4                 |
| Stomach (C16)  | 5.8          | 8.1            | 6.1             | 7.2              | 27.2                 |
| Multiple myeloma, mal plasma cell neo (C90)                        | 5.4          | 12.9           | 5.6             | 2.7              | 26.6                 |
| Bone and connective tissue (C40-C41, C47, C49)                     | 2.3          | 6.4            | 6.3             | 8.0              | 22.9                 |
| Brain and other CNS (C70-C72, C75.1-C75.3)                         | 3.9          | 6.9            | 4.0             | 7.0              | 21.9                 |
| Oesophagus (C15)   | 6.4          | 7.5            | 3.9             | 3.6              | 21.4                 |
| Larynx (C32)   | 1.4          | 5.4            | 4.8             | 4.9              | 16.5                 |
| Pancreas (C25)   | 6.5          | 3.0            | 1.0             | 1.0              | 11.5                 |
| Liver and intrahepatic bile ducts (C22)                            | 2.5          | 2.9            | 1.0             | 0.8              | 7.2                  |

<sup>1</sup> C00-C96 excl C44 (C97 is not used by the Scottish Cancer Registry).  
Source: Scottish Cancer Registry, ISD

Data extracted: March 2013

Cancers with high incidence along with favourable survival have the highest prevalence, in particular breast cancer; for example, 1.6% of women in Scotland are living with breast cancer. Prevalence is increasing for many cancers due to a combination of improvements in prognosis and screening techniques, as well as increasing incidence.

The prevalence of cancer in the Scottish population increases with age (Table 4), with 12.0% of men and 10.6% of women (11,997 and 10,560 cases per 100,000 population, respectively) of people aged 65 and over living with cancer, compared to 2.7% of men and 4.7% of women aged 45-64, and 0.4% of men and 0.6% of women aged under 45. The prevalence figures by age group include all cancer diagnoses from 20 years previously, up to those diagnosed very recently.

The most prevalent cancer (4.8%) in men aged 65 and over is prostate cancer; in females 65 and over the most prevalent cancer is breast cancer (4.7%). Overall, 65% of males and 56% of females who are living with a diagnosis of cancer are aged 65 and over.

**Table 4: Cancer survivors (prevalence) at 31 December 2011, current ages of those surviving up to 20 years following diagnosis**

| <b>Males</b>   |          |         |          |          |
|--|----------|---------|----------|----------|
| Age-specific prevalence: rate per 100,000 in population            |          |         |          |          |
| Cancer site / type (ICD-10)  | Under 45 | 45-64   | 65+      | All Ages |
| All malignant neoplasms excl non-melanoma skin cancer <sup>1</sup> | 379.6    | 2,692.1 | 11,997.2 | 2,730.8  |
| Prostate (C61)   | 0.6      | 483.5   | 4,777.5  | 840.2    |
| Colorectal (C18-C20)   | 10.0     | 408.1   | 2,569.8  | 497.8    |
| Colon (C18)  | 6.3      | 235.1   | 1,640.8  | 310.8    |
| Head and Neck (C00-C14, C30-C32)                                   | 13.5     | 283.5   | 762.6    | 198.0    |
| Rectum and rectosigmoid junction (C19-C20)                         | 3.8      | 176.3   | 964.9    | 193.2    |
| Malignant melanoma of the skin (C43)                               | 42.7     | 251.9   | 600.3    | 182.2    |
| Bladder (C67)  | 2.0      | 79.5    | 810.6    | 142.9    |
| Testis (C62)   | 111.0    | 251.6   | 52.5     | 140.5    |
| Non-Hodgkin's lymphoma (C82-C85)                                   | 28.4     | 189.9   | 480.8    | 139.4    |
| Trachea, bronchus and lung (C33-C34)                               | 4.2      | 110.3   | 715.7    | 138.6    |
| Kidney (C64-C65)   | 10.6     | 136.8   | 414.2    | 104.8    |
| Leukaemias (C91-C95)   | 40.4     | 95.1    | 349.2    | 101.1    |
| Larynx (C32)   | 1.8      | 79.8    | 340.1    | 73.2     |
| Oral cavity (C01-C06)  | 5.0      | 101.6   | 210.8    | 61.8     |
| Hodgkin's disease (C81)  | 41.0     | 57.3    | 48.0     | 46.5     |
| Stomach (C16)  | 1.6      | 34.5    | 211.4    | 41.7     |
| Oesophagus (C15)   | 1.2      | 50.2    | 180.2    | 41.0     |
| Multiple myeloma and malignant plasma cell neoplasms (C90)         | 1.2      | 42.4    | 150.6    | 34.6     |
| Bone and connective tissue (C40-C41, C47, C49)                     | 18.8     | 37.9    | 84.8     | 33.8     |
| Brain and other CNS (C70-C72, C75.1, C75.3)                        | 25.9     | 40.3    | 29.3     | 30.3     |
| Thyroid (C73)  | 9.4      | 31.8    | 45.8     | 20.9     |
| Liver and intrahepatic bile ducts (C22)                            | 1.2      | 22.2    | 70.1     | 17.2     |
| Pancreas (C25)   | 0.9      | 15.0    | 48.2     | 11.7     |

<sup>1</sup> C00-C96 excl C44 (C97 is not used by the Scottish Cancer Registry).  
Source: Scottish Cancer Registry, ISD

Data extracted: March 2013

| <b>Females</b>   |          |         |          |          |
|--|----------|---------|----------|----------|
| Age-specific prevalence: rate per 100,000 in population            |          |         |          |          |
| Cancer site / type (ICD-10)  | Under 45 | 45-64   | 65+      | All Ages |
| All malignant neoplasms excl non-melanoma skin cancer <sup>1</sup> | 566.0    | 4,718.1 | 10,559.6 | 3,567.0  |
| Female breast (C50, females)                                       | 123.7    | 2,482.0 | 4,722.8  | 1,626.5  |
| Colorectal (C18-C20)   | 12.9     | 303.5   | 1,729.3  | 413.5    |
| Colon (C18)  | 8.4      | 189.5   | 1,254.4  | 291.1    |
| Malignant melanoma of the skin (C43)                               | 97.6     | 367.3   | 562.1    | 258.0    |
| Corpus uteri (C54)   | 4.6      | 249.0   | 806.2    | 221.2    |
| Ovary (C56)  | 36.5     | 226.6   | 342.8    | 145.6    |
| Trachea, bronchus and lung (C33-C34)                               | 3.8      | 126.1   | 544.7    | 138.4    |
| Cervix uteri (C53)   | 87.7     | 248.3   | 123.9    | 138.2    |
| Non-Hodgkin's lymphoma (C82-C85)                                   | 17.1     | 147.5   | 429.3    | 129.8    |
| Rectum and rectosigmoid junction (C19-C20)                         | 4.5      | 115.6   | 490.8    | 125.8    |
| Head and Neck (C00-C14, C30-C32)                                   | 9.3      | 107.0   | 270.9    | 84.9     |
| Kidney (C64-C65)   | 9.4      | 74.9    | 240.7    | 70.5     |
| Leukaemias (C91-C95)   | 33.3     | 57.8    | 192.1    | 69.7     |
| Thyroid (C73)  | 37.1     | 103.2   | 82.7     | 63.6     |
| Bladder (C67)  | 1.4      | 27.3    | 243.7    | 53.8     |
| Oral cavity (C01-C06)  | 3.3      | 49.2    | 124.9    | 38.6     |
| Hodgkin's disease (C81)  | 32.7     | 35.7    | 26.6     | 32.4     |
| Stomach (C16)  | 1.3      | 19.7    | 112.8    | 27.2     |
| Multiple myeloma and malignant plasma cell neoplasms (C90)         | 0.8      | 25.3    | 102.9    | 26.6     |
| Bone and connective tissue (C40-C41, C47, C49)                     | 14.4     | 24.3    | 45.2     | 22.9     |
| Brain and other CNS (C70-C72, C75.1, C75.3)                        | 21.6     | 25.8    | 17.1     | 21.9     |
| Oesophagus (C15)   | 0.5      | 18.0    | 86.7     | 21.4     |
| Larynx (C32)   | 0.7      | 18.0    | 60.1     | 16.5     |
| Pancreas (C25)   | 1.1      | 11.8    | 41.2     | 11.5     |
| Liver and intrahepatic bile ducts (C22)                            | 1.3      | 7.7     | 23.4     | 7.2      |

<sup>1</sup> C00-C96 excl C44 (C97 is not used by the Scottish Cancer Registry).  
Source: Scottish Cancer Registry, ISD

Data extracted: March 2013

## Cancer mortality

This section was last updated in October 2014, It will next be updated in October 2015. This section is updated annually, alongside the Cancer Mortality National Statistics publication.

### **Note about the 2013 European Standard Population**

The 2013 European Standard Population (ESP2013) has been used to calculate the European Age Standardised Rates (EASRs) within this publication. The European Standard Population (ESP), which was first used in 1976, was revised in 2013. Figures using ESP1976 and ESP2013 are not comparable. Therefore, findings from this publication are not comparable with previous ISD reports. Further detail regarding this change and a worked example of EASRs using both ESP1976 and ESP2013 can be found in Appendix A1 of the latest [Cancer Mortality publication](#).

In 2013, 15,764 people died of cancer in Scotland. Lung cancer accounted for the largest number of deaths in both sexes, with 26.4% of cancer deaths in males, and 25.8% of cancer deaths in females. The absolute number of lung cancer deaths in males was 2127 and in females was 1993. Colorectal, breast and prostate cancer were the other major causes of cancer deaths (Table 5).

Overall cancer mortality rates have decreased by 15.0% in males and 5.8% in females in the last 10 years. In men, the largest falls in mortality among the top 10 causes of death from cancer have been in stomach, lung and colorectal cancer (37.6%, 20.8% and 19.8% respectively). Death rates from prostate cancer, the most frequently diagnosed cancer in males (Table 1), have decreased by 11.9% over the 10 years to 2013. The death rate from cancer of the liver has increased by 40.7% in men over the last 10 years, a statistically significant trend.

For women, the largest falls in mortality rates among the top 10 causes of death from cancer were observed in stomach, breast and ovarian cancer (24.9%, 19.2% and 15.9% respectively) (Table 5). Death rates from breast cancer, the most frequently diagnosed cancer in females, have decreased in spite of the increase in incidence of female breast cancer (Table 1). Cervical cancer deaths have decreased by 18.2% over the same time period, in keeping with a longer term trend (data not shown in Table 5 as cervical cancer lies outside the top 10 causes of death from cancer).

**Table 5: Most common causes of death from cancer in Scotland in 2013: Rank, number, frequency and change in mortality rate since 2003**

| <b>Males</b>       |  |        |           |                               |         |
|--------------------|--|--------|-----------|-------------------------------|---------|
| Rank               | ICD-10 site grouping                                       | Number | Frequency | 10 year % change <sup>1</sup> | p-value |
| 1                  | Trachea, bronchus and lung (C33-C34)                       | 2,127  | 26.4%     | -20.8                         | <0.001  |
| 2                  | Prostate (C61)   | 876    | 10.9%     | -11.9                         | 0.000   |
| 3                  | Colorectal (C18-C20)                                       | 871    | 10.8%     | -19.8                         | <0.001  |
| 4                  | Oesophagus (C15)   | 538    | 6.7%      | -10.2                         | 0.001   |
| 5                  | Pancreas (C25)   | 354    | 4.4%      | +5.6                          | 0.215   |
| 6                  | Liver and intrahepatic bile ducts (C22)                    | 343    | 4.3%      | +40.7                         | <0.001  |
| 7                  | Bladder (C67)  | 318    | 4.0%      | -14.8                         | 0.005   |
| 8                  | Head and Neck (C00-C14, C30-C32)                           | 312    | 3.9%      | +2.0                          | 0.688   |
| 9                  | Stomach (C16)  | 265    | 3.3%      | -37.6                         | <0.001  |
| 10                 | Brain and other CNS (C70-C72, C75.1-C7                     | 238    | 3.0%      | -0.7                          | 0.924   |
|                    | Other malignant neoplasms                                  | 1,805  | 22.4%     | x                             | x       |
|                    | All malignant neoplasms excluding non-melanoma skin cancer | 8,047  | 100.0%    | -15.0                         | <0.001  |
| <b>Females</b>     |  |        |           |                               |         |
| Rank               | ICD-10 site grouping                                       | Number | Frequency | 10 year % change <sup>1</sup> | p-value |
| 1                  | Trachea, bronchus and lung (C33-C34)                       | 1,993  | 25.8%     | +6.8                          | 0.014   |
| 2                  | Breast (C50)   | 1,013  | 13.1%     | -19.2                         | <0.001  |
| 3                  | Colorectal (C18-C20)                                       | 707    | 9.2%      | -9.1                          | 0.005   |
| 4                  | Ovary (C56)  | 396    | 5.1%      | -15.9                         | <0.001  |
| 5                  | Pancreas (C25)   | 388    | 5.0%      | +5.4                          | 0.310   |
| 6                  | Oesophagus (C15)   | 290    | 3.8%      | -12.2                         | 0.016   |
| 7                  | Stomach (C16)  | 226    | 2.9%      | -24.9                         | 0.000   |
| 8                  | Bladder (C67)  | 213    | 2.8%      | +2.1                          | 0.788   |
| 9                  | Non-Hodgkin's lymphoma (C82-C85)                           | 191    | 2.5%      | -12.3                         | 0.067   |
| 10                 | Liver and intrahepatic bile ducts (C22)                    | 190    | 2.5%      | +34.8                         | 0.000   |
|                    | Other malignant neoplasms                                  | 2,110  | 27.3%     | x                             | x       |
|                    | All malignant neoplasms excluding non-melanoma skin cancer | 7,717  | 100.0%    | -5.8                          | <0.001  |
| <b>All persons</b> |  |        |           |                               |         |
| Rank               | ICD-10 site grouping                                       | Number | Frequency | 10 year % change <sup>1</sup> | p-value |
| 1                  | Trachea, bronchus and lung (C33-C34)                       | 4,120  | 26.1%     | -10.9                         | 0.001   |
| 2                  | Colorectal (C18-C20)                                       | 1,578  | 10.0%     | -15.9                         | <0.001  |
| 3                  | Breast (C50) <sup>2</sup>                                  | 1,020  | 6.5%      | x                             | x       |
| 4                  | Prostate (C61) <sup>2</sup>                                | 876    | 5.6%      | x                             | x       |
| 5                  | Oesophagus (C15)   | 828    | 5.3%      | -10.8                         | 0.001   |
| 6                  | Pancreas (C25)   | 742    | 4.7%      | +5.5                          | 0.086   |
| 7                  | Liver and intrahepatic bile ducts (C22)                    | 533    | 3.4%      | +38.8                         | <0.001  |
| 8                  | Bladder (C67)  | 531    | 3.4%      | -10.3                         | 0.291   |
| 9                  | Stomach (C16)  | 491    | 3.1%      | -33.8                         | <0.001  |
| 10                 | Head and Neck (C00-C14, C30-C32)                           | 451    | 2.9%      | +5.8                          | 0.066   |
|                    | Other malignant neoplasms                                  | 4,594  | 29.1%     | x                             | x       |
|                    | All malignant neoplasms excluding non-melanoma skin cancer | 15,764 | 100.0%    | -11.4                         | <0.001  |

'x' = not applicable.

<sup>1</sup> Calculated using Poisson regression analyses.

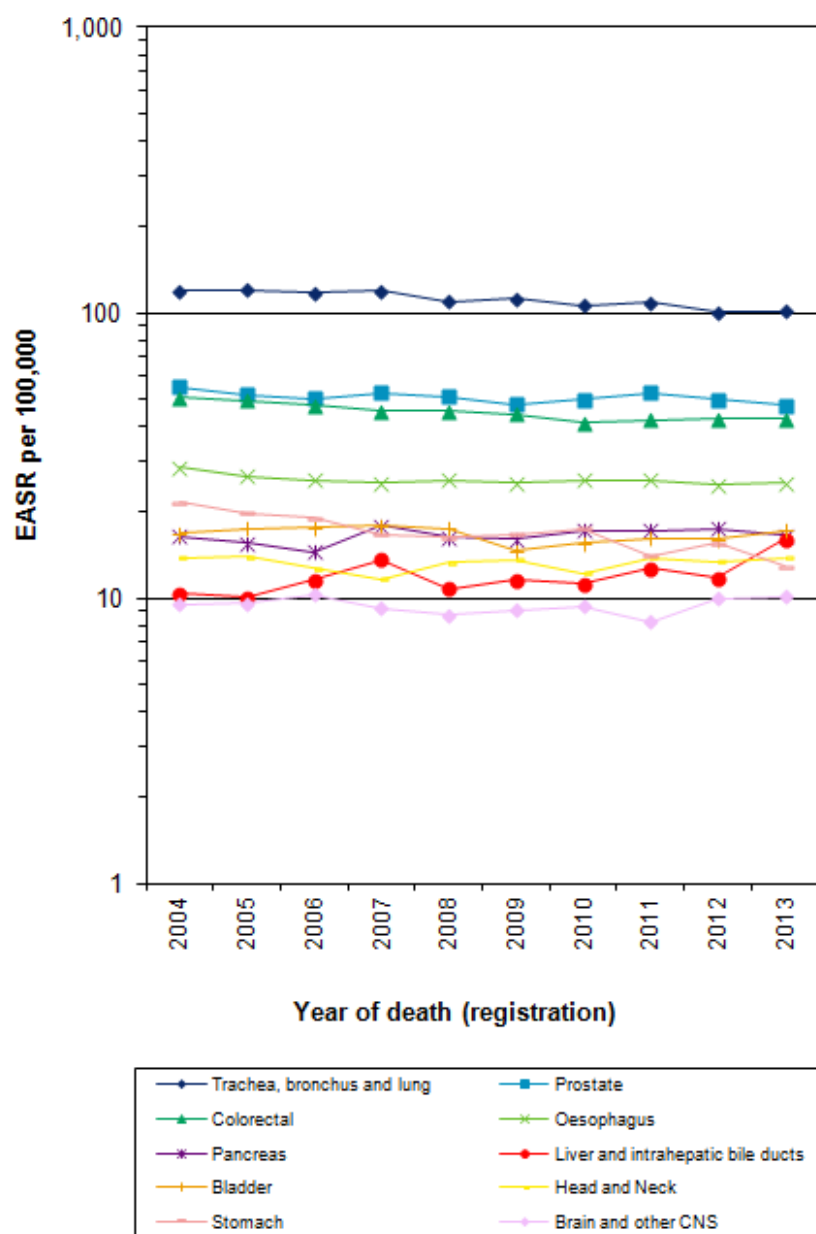
<sup>2</sup> Percentage change in mortality is not shown here for cancers occurring mainly or only in one sex.

Source: National Records of Scotland (NRS)

Date extracted: September 2014

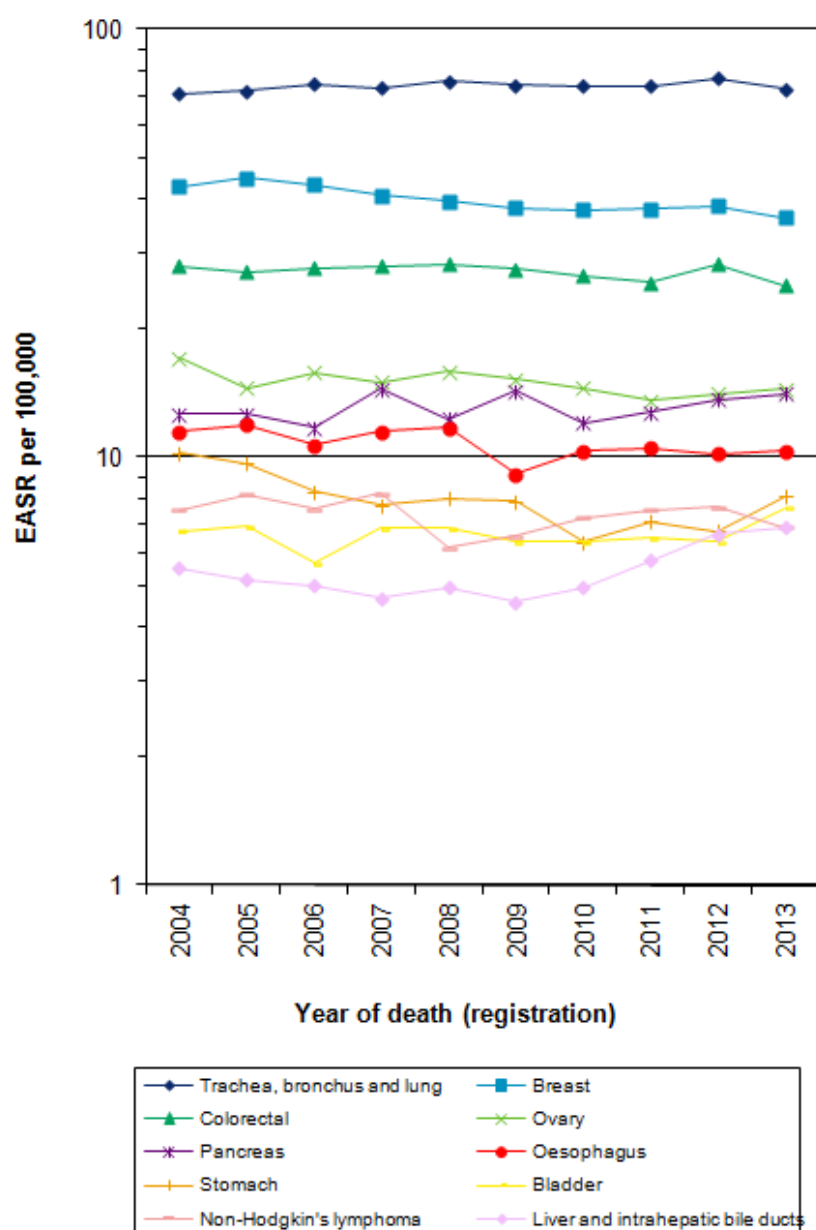
**Figure 6: Trends in mortality from ten most common cancer causes of death, males**

EASR: Age-standardised rate, standardised to the 2013 European Standard Population



**Figure 7: Trends in mortality from ten most common cancer causes of death, females**

EASR: Age-standardised rate, standardised to the 2013 European Standard Population



## Cancer survival

This section was last updated in August 2010. The next update will be in 2014. This section is updated with the National Statistics publication of Cancer in Scotland; please also see the summary document [\*Trends in Cancer Survival in Scotland 1971-1995\*](#).

For patients aged 15-99 years that were diagnosed with any type of cancer during the period 2003-2007, 59% of male and 66% of female patients survived to one year after diagnosis and 36% of male and 45% of female patients survived to five years after diagnosis.

Survival is worst in patients with cancers that often present at an advanced stage and are less amenable to treatment (for example, cancers of the lung and pancreas). Survival tends to be better for cancers for which patients present at an early stage (for example, malignant melanoma of the skin), cancers which can be detected early by screening (for example, breast cancer), and for cancers for which there have been major advances in treatment (for example, testicular cancer and leukaemias).

Age standardised five-year survival for cancer patients, relative to the life expectancy of the population in general, increased from 26% for males diagnosed in 1983-1987 to 44% for males diagnosed 2003-2007, and from 36% to 51% for females<sup>1</sup>. This represents a substantial and significant improvement in the probability of surviving cancer in the long term.

Survival from **prostate** cancer has improved substantially in that time period, from (56% to 85%)<sup>1</sup>. Much of this is likely to be due to increasingly widespread use of prostate-specific antigen (PSA) testing in Scotland since the 1990s. The PSA test enables some invasive prostate cancers to be identified earlier than in the past, leading to an increase in survival time (between diagnosis and death) even for men whose death is not necessarily postponed. The PSA test also identifies some latent, non-lethal tumours that may never cause symptoms and may never be diagnosed during life. A number of studies are underway in Europe and the USA to determine whether population screening programmes based on the PSA test are an effective way to reduce mortality from prostate cancer.

Survival for female **breast** cancer patients has also increased substantially, from 61% for those diagnosed in 1983-1987 to 81% in 2003-2007<sup>1</sup>. This improvement is likely to be due to a combination of new treatments, particularly hormonal therapy, earlier diagnosis of cancers in women participating in the Scottish Breast Screening Programme, and better organisation and delivery of care for patients.

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<sup>1</sup> Relative survival is an estimate of the observed survival divided by the expected probability of survival in the general population. This can be thought of as a measure of the survival expectation after contracting cancer, or the probability of survival from cancer in the **absence** of other causes of death.



Large improvements in survival are seen for cancers of the **colon and rectum** with around 55% of patients now surviving at least five years after diagnosis, compared to around 38% of those diagnosed between 1983-1987. Improvements in peri-operative care may have contributed to the increase in survival. Early diagnosis of these cancers is very important in determining options for treatment and increasing the probability of cure for the patient. The continuing rollout of the Scottish Bowel Screening Programme will increase early detection.

Substantial improvements in survival are also observed for females with cancer of the **corpus uteri** (increase from 65% to 77%), for patients with **Non-Hodgkin's lymphoma** (males: 33% to 58%; females 40% to 61%), **Hodgkin's disease** (males: 63% to 79%; females: 66% to 79%) and **leukaemia** (males: 29% to 50%; females: 27% to 49%).

Increases in the five year survival for **malignant melanoma of the skin** (64% to 85% in males, and 82% to 92% in females). These positive changes are likely to reflect an increase in diagnosis of early stage disease following health education programmes that encourage earlier presentation and referral.

The lack of improvement for patients with **head and neck** cancers is largely an artefact of the large decrease in the proportion of **lip** tumours, which usually have an excellent prognosis. Survival at specific sites within the head and neck has generally improved.

Survival remains poor with little improvement over time for patients with **lung** cancer, and **pancreatic** cancer. These internal tumours frequently present at an advanced stage and are less amenable to treatment, and, particularly with pancreatic cancer, scanning technology has improved diagnosis rates; this may have translated into decreased survival rates in the most recent time period. However, survival has increased greatly for patients with **stomach** cancer (males: 9% to 15%; females: 11% to 18%) and **oesophageal** cancer in males: 5% to 10%.

A report on trends in cancer survival in Scotland from 1971-1995 for 25 cancer types can be found at [http://www.isdscotland.org/isd/files/trends\\_1971-95.pdf](http://www.isdscotland.org/isd/files/trends_1971-95.pdf), which contains detailed data and methods sections. An up-date of this publication for the period 1983-2007 can be found on our web site at <http://www.isdscotland.org/cancer>.

## Children, teenagers and young adults

This section was last updated in March 2011. The section is based on occasional publications and the next update has not yet been announced.

Incidence and survival information for teenagers and young adults can be found at the following area on the ISD website:

<http://www.isdscotland.org/Health-Topics/Cancer/Cancer-Statistics/Teenage-and-Young-Adults>.

In brief, the incidence of cancer in teenagers and young adults (aged 15-24) account for less than 1% of all cancers per year (an average of 176 cases per year) in Scotland. Incidence rates of all cancers in teenagers and young adults have increased over time, rising from 195.9 to 263.2 per million population between the periods 1979-1983 and 1999-2003. Rates have remained stable in the subsequent 5 year period 2004-2008 (263.1 per million population). Five-year (observed) survival from all cancers in teenagers and young adults has increased by 16% (from 67% to 83%) between the periods 1979-1983 and 2004-2008.

A report on childhood cancer in Scotland including incidence, mortality and survival for 1983-2007 is also available at:

<http://www.isdscotland.org/Health-Topics/Cancer/Cancer-Statistics/Childhood>

It shows that the incidence of childhood cancer in Scotland has increased, mortality has decreased, and survival has improved, over the period 1983-1987 to 2003-2007. In summary, around 130 children are diagnosed with cancer in Scotland each year, accounting for less than 1% of all malignant neoplasms diagnosed at all ages. Overall, the incidence of, and mortality from, childhood cancer are higher in boys than in girls. The two most commonly occurring cancers in childhood are leukaemia, and Central Nervous System (mostly brain) tumours. Between 1983-1987 and 2003-2007, the age- and sex-standardised incidence rate of all childhood cancer increased, from 120 to 161 per million children per year. Similar incidence trends have been seen in other European countries. During the same period, the age- and sex-standardised mortality rate of all childhood cancer decreased from 39 to 36 per million children per year. Five-year survival for all childhood cancers combined has increased from 65% for those diagnosed during 1983-1987 to 76% for those diagnosed during 1998-2002, and for some specific types of childhood cancer, survival prospects are now excellent.

Since the early 1990s, the UK Childhood Cancer Study Investigators have been collating and analysing data, with a view to investigating the possible causes of childhood cancer.

## UK statistics

Summary information on cancer in the UK can be found at <http://info.cancerresearchuk.org/cancerstats/> and information for England can be found at <http://www.statistics.gov.uk/>.

Comparative data on incidence and mortality for the UK can be found in the UK Cancer e-Atlas produced by the National Cancer Intelligence Network: [http://www.ncin.org.uk/cancer\\_information\\_tools/eatlas/](http://www.ncin.org.uk/cancer_information_tools/eatlas/)