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Summary

- Cancer is common. It is the commonest cause of death in Scotland and two in five people will be diagnosed with cancer at some point in their lives.
- The risks of developing some cancers (including lung, colorectal and stomach cancers and leukaemias) have decreased over the past 10 years; while the risks of others (including liver and thyroid cancers and skin melanomas) have increased.
- The numbers of new cases of cancer (incidence) and deaths from cancer (mortality) have increased over time because the size of the older population has grown.
- There is a large potential to prevent many of the commonly occurring cancers in Scotland through lifestyle changes. These include preventing smoking, improving diet and reducing obesity and alcohol consumption.
- Cancer screening aims to detect cancers at an earlier stage when treatment will be more effective. It also aims to prevent some cancers occurring. Uptake of cancer screening is 64% for bowel screening (November 2017-April 2019); 73% for cervical screening (2018-19); and 72% for breast screening (2016-17 to 2018-19). Uptake has increased over time for bowel screening and for breast screening (for latest time period) after falling consistently. The proportion of people who take up screening is much lower in more deprived areas compared to less deprived areas of Scotland – about 20% for breast and bowel screening and 11% for cervical screening.
- There have been improvements in recording stage of cancer in recent years which make it difficult to be sure whether changes over time are real or due to more complete records. The evidence is clearest that lung cancer is being diagnosed at an earlier stage than it was in 2011-12.
- 85% of patients urgently referred with suspected cancer begin treatment within 62 days; while 96% of patients begin treatment within 31 days of decision to treat a newly-diagnosed cancer. The relationship between waiting time and cancer outcomes is not fully understood.
- 41% of people who died from cancer did so in an NHS hospital and 30% died at home. There has been a decrease over time in the proportion of people who die in hospital.
- Survival from cancer is improving over time but comparisons with other developed countries indicate that cancer survival in Scotland – and other UK countries – is poorer. The explanations and remedies for these differences are likely to lie in a range of areas, from earlier detection through to more rapid and effective treatment.
Introduction – Informing Cancer Control

This report provides a digest of previously published information on cancer in Scotland, written for the purposes of informing cancer control. That is, to prevent cancer occurring; if it cannot be prevented, to improve survival through early detection and effective treatment; and to improve the experience of people living with cancer.

Two in 5 people in Scotland will be diagnosed with cancer at some point in their lives. The risk of dying from cancer has fallen over time\(^1\) but not as much as the other leading causes of death – heart disease and stroke. As a result, cancer is by far the single largest cause of death in Scotland. That said, cancer is a mixture of diverse conditions with different risk factors, treatment and outcomes. Each has to be understood to improve cancer control.

The potential of cancer data in Scotland

Public Health Scotland produces regular reports to describe the occurrence and outcomes of cancer as expected of any national population-based cancer registry. It also produces information on the processes of cancer care – including waiting times, screening and audit. Further information is provided through information requests and increasingly through an online dashboard. Public Health Scotland has partnerships with other organisations, for example, Macmillan Cancer Support, who bring resources to allow additional work to be carried out on Life After Prostate Cancer Diagnosis or the Cancer Patient Experience Survey, for instance.

There is a large potential to produce further analyses of cancer data at Public Health Scotland with additional analytical resources. Detailed information on treatment with systemic anti-cancer therapy (SACT) and radiotherapy, cancer waiting times and other data are being brought together with cancer registrations and will provide insights to better understand how to improve cancer control.

\(^1\) Cancer Mortality in Scotland. Annual update to 2018. 29th October 2019.
Cancer incidence, prevention and planning

Cancer incidence describes new cases of cancer. Every new cancer that is diagnosed in Scotland is registered with the Scottish Cancer Registry. The absolute number of incident cancers is important for identifying where prevention and treatment resources should be focussed. The numbers are affected by both the risk of developing cancer and the number of people at risk. For most cancers, risk is greater in people who are older and an increasing number of older people is part of the reason for an increase in numbers over time. The risk, or rate, of incident cancers indicates the chances of developing cancer, irrespective of the size of the population at risk. This helps to indicate whether exposure to risk factors may be responsible for changes in cancer occurrence. It is estimated that about 4 in 10 cancers might be prevented through lifestyle factors, with smoking, obesity and diet being the largest factors overall.

Figure 1 presents the numbers of new cancers in Scotland in 2018 for the twenty most common cancers in men and women. The commonest cancers are female breast cancer (the commonest cancer in women); lung cancer (which, when male and females are added together, is the most common of all cancers); prostate cancer (the commonest cancer in men); and colorectal (bowel) cancer. Together, these 4 cancers accounted for over half (18,647/33,958, 55%) of all non-melanoma cancers in Scotland in 2018. It follows that a relatively large part of cancer services is dedicated to diagnosis and treatment of these diseases.

Figure 1: Most common 20 cancers in Scotland in 2018 for females and males (ordered by total for all persons).

Source: Scottish Cancer Registry
Risk factors

About 40% of cancers in Scotland are preventable through lifestyle changes – principally smoking, alcohol consumption, being overweight, physical activity and diet. The World Cancer Research Fund (WCRF) provides informative summaries on diet, nutrition, physical activity and cancer risks\(^2\) and the Scottish Health surveys\(^3\) provide recent information on the prevalence of these risk factors in Scotland. A brief review of some of these risk factors is given here.

Most (79%) lung cancers would be prevented if people did not smoke. Smoking prevalence has fallen from 28% of adults in 2003 to 19% in 2018\(^4\) and the average number of cigarettes smoking per day has also fallen. Smoking is more common in men (21%) than women (17%) and people who live in the most deprived areas are much more likely to smoke (prevalence 32% vs 9%). Age-adjusted lung cancer incidence rates were three times higher in the most deprived areas of Scotland compared with the least deprived (age-adjusted incidence rates of 177 and 60 per 100,000, respectively for 2014-2018). It is better never to start smoking but it is never too late to benefit from stopping – even among patients who are being treated for cancer\(^5\). Smoking is also a risk factor for many other cancers – including head and neck, oesophagus, bowel and bladder\(^6\).

A variety of risk factors have been identified for breast cancer and some of them are not easily modified – such as family size or age at having a first child. However, physical activity and breastfeeding reduce the risk of post-menopausal breast cancer while being obesity and alcohol consumption increase the risk. For female breast cancer, incidence was 14% higher in the least deprived areas compared with the most deprived (age-adjusted incidence rates of 180 and 157 per 100,000, respectively, for 2014-2018).

About 65% of adults in Scotland are overweight or obese, with a higher prevalence among men than women: only a third of adults are in the healthy weight category\(^7\). There is no minimum level at which alcohol is not considered a risk for cancer. The majority of people in Scotland (84%) drink alcohol. Men are more likely than women to drink alcohol at all and men drink more than women. The relationship between alcohol consumption and deprivation is not simple. Hazardous and harmful drinking is less common with greater deprivation in women but there is no clear pattern in men.

The main modifiable risk factors for colorectal cancers are a typical Western diet (high in red and processed meat, low in fruit and vegetables), alcohol and obesity. Physically activity

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\(^2\) [https://www.wcrf-uk.org.uk/our-research/cancer-research-findings](https://www.wcrf-uk.org.uk/our-research/cancer-research-findings)


\(^5\) [https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2945268/](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2945268/)


decreases the risk of colon cancers\(^8\). The incidence of colorectal cancers is 5% higher in the most deprived areas compared with the least deprived (age-adjusted incidence rates of 79 and 75 per 100,000, respectively, for 2014-2018).

In 2018, two thirds of adults met the guidelines for moderate or vigorous physical activity but there is a large difference between the least deprived (74%) and most deprived (54%). Men are more likely to meet the guidelines than women.

There is now strong evidence that being overweight or obese increases the risk of advanced prostate cancer although few other convincing modifiable risk factors exist\(^9\). For prostate cancer, incidence was 27% higher in the least deprived areas compared with the most deprived (age-adjusted incidence rates of 174 and 137 per 100,000, respectively, for 2014-2018). This may be an artefact reflecting higher rates of prostate specific antigen (PSA) testing of the populations in these areas\(^1\), although there may be some sort of correlation with testosterone levels.

The risks of developing these cancers are dynamic and Figure 2 shows the extent to which the twenty most common cancers have increased or decreased in the last 10 years in men and women.

**Figure 2: 10-year percentage change in age-adjusted incidence rate for 20 most common cancers in Scotland.**

- Stomach (C16)
- Leukaemias (C91-C95)
- Colorectal (C18-C20)
- Trachea, bronchus and lung (C33-C34)
- Oesophagus (C15)
- Pancreas (C25)
- Breast (C50)
- Cervix uteri (C53)
- Corpus uteri (C54)
- Multiple myeloma and malignant plasma cell neoplasms (C90)
- Brain and other CNS (C70-C72, C75.1-C75.3)
- Prostate (C61)
- Malignant melanoma of skin (C43)
- Kidney (C64-C65)
- Malignant melanoma of skin (C43)
- Head and Neck (C00-C14, C30-C32)
- Corpus uteri (C54)
- Breast (C50)
- Cervix uteri (C53)
- Brain and other CNS (C70-C72, C75.1-C75.3)
- Pancreas (C25)
- Oesophagus (C15)
- Bladder (C67)
- Non-Hodgkin lymphoma (C82-C86)
- Ovary (C56)
- Trachea, bronchus and lung (C33-C34)
- Colorectal (C18-C20)
- Leukaemias (C91-C95)
- Stomach (C16)

Source: Scottish Cancer Registry

Some other preventable cancers are worth noting here. Head and neck cancers include many sites where cancers are caused by the effects of smoking, drinking and also the

\(^8\) [https://www.wcrf.org/dietandcancer/colorectal-cancer](https://www.wcrf.org/dietandcancer/colorectal-cancer)
\(^9\) [https://www.wcrf.org/dietandcancer/prostate-cancer](https://www.wcrf.org/dietandcancer/prostate-cancer)
vaccine-preventable Human Papilloma Virus. HPV is also largely responsible for cancers of the cervix and there are indications that pre-cancerous conditions of the cervix have fallen since the vaccination programme was introduced in Scotland for females\textsuperscript{10}.

Skin melanomas are largely the results of sunburn or other exposure to UV radiation. The increase in thyroid cancers may be partly due to greater detection. The increase in primary liver cancers is probably a result of the combined effects of obesity and alcohol, with viral hepatitises also having roles.

Declines in stomach cancers are longstanding trends, largely driven by the reduction in \textit{Helicobacter pylori} prevalence.

In summary, overall cancer numbers have increased over time while the risk is falling. Beneath these overall patterns, some cancers are becoming more common and others decreasing. The implications for prevention are that there remain a large number of cancers for which preventable risk factors are known and action to reduce them would result in fewer new cancers.

\textsuperscript{10} https://www.bmj.com/content/365/bmj.l1161
Early detection and treatment - cancer outcomes

Where cancer cannot be prevented, the aim is to detect it at the earliest stage so that treatment, and hopefully cure, can be achieved. Public Health Scotland reports on several aspects of early detection and treatment, including: cancer screening; stages of cancers detected in the Detect Cancer Early (DCE) programme and in the Cancer Registry; and waiting times to be treated. Outcomes that are reported include mortality, survival and prevalence.

Screening

Scotland offers national screening programmes for breast, cervical and colorectal cancers.

The aim of screening is to diagnose cancers earlier than they would have been and thereby to improve outcomes. Participating in screening is an informed choice and so uptake would not be expected to be 100%.

Bowel screening uptake was 64% in November 2017 to April 2019, having risen by 8% after the new FIT test was introduced in November 2017. The UK and Ireland Association of Cancer Registries' Key Performance Indicators\(^\text{11}\) reported that 29% of people aged 60-69 who were diagnosed with bowel cancer in 2017 were screen-detected. The age ranges used by the UKIACR are not always the same as those for screening in Scotland, but allow for direct comparisons with other countries.

Cervical screening uptake was 73% in 2018-19 and has remained at this level since 2016-17. Half of cervical cancers in women diagnosed in 2016 aged 25-60 years were screen-detected.\(^\text{11}\)

Uptake of breast screening was 72% for the period 2016-17 to 2018-19, having fallen for the last decade. A minimum target of 70% uptake exists. Breast screening is offered for women aged 50-70 years. Just over half (50%) of women aged 50-64 years who were diagnosed with breast cancer were screen-detected in 2017.\(^\text{11}\)

Screening uptake is poorest among people from more socio-economically deprived areas. Uptake of breast screening is 80% in the least deprived and 59% in the most deprived, a difference of over 20%. The socio-economic difference in uptake of bowel screening is also large but fell after the introduction of FIT from 23% to 21%. For cervical screening, uptake was 67% in the most deprived areas compared with 78% in the least deprived areas, a difference of 11%.

Screening tends to detect cancers at an earlier stage than if they are diagnosed symptomatically. It also detects pre-cancerous conditions (particularly for cervical screening, also for bowel) that can be treated to prevent cancer occurring. It remains a complex

\(^{11}\) http://www.ukiacr.org/kpis
question, however, about whether screening to some extent identifies cancers that are slower-growing and would have had a more favourable prognosis and therefore the extent to which it changes overall outcomes. It is also difficult to determine to what extent longer survival after a screen-detected cancer is diagnosed is an artefact of knowing about the cancer earlier (lead time bias) or a true lengthening of life expectancy.

Stage at diagnosis

For most solid (non-haematological) cancers, the stage or spread of the cancer can be grouped into four categories, from I (indicating that the cancer is confined to the original organ in which it arose) to IV (the cancer has spread beyond the original organ and its local lymph glands to other parts of the body). Patients diagnosed with Stage I disease tend to have better outcomes and longer survival compared with patients diagnosed with Stage IV disease.

The completeness of cancer registry data on cancer stage have been improving over time but missing data make it difficult to be sure whether changes are real or due to better recording of information. Figure 3 shows that the proportions of lung, breast, cervical and ovarian cancers without a stage on the cancer registry have fallen over time.

Figure 3: Trends in percentage of cancer patients (for lung, breast, cervical and ovarian cancer) with unknown stage in Scotland, 1999-2018

Source: Scottish Cancer Registry
For lung cancer, almost half are diagnosed when the cancer has spread elsewhere and the patient is unlikely to be cured (46% in 2018). Symptoms of lung cancer are common and not specific for lung cancer (for example, a persistent cough or unexplained weight loss) and often only appear later as the disease progresses. The proportions of both early (Stage I) and late (Stage IV) lung cancer have increased over the same period (Figure 4). Almost all of the increases in Stages I and IV are due to the improvement in recording of stage at diagnosis, as there has been a large reduction in the proportion of lung cancers with no stage recorded, falling from 63% in 2005 to 7% in 2018.

Figure 4: Trends in stage distribution of lung cancer in Scotland, 2005-2018.

![Stage Distribution Graph](image)

Source: Scottish Cancer Registry

The most common stages of breast cancer diagnoses were Stages I and II (41% and 38%, respectively in 2018). The proportion of patients with an unknown stage has fallen to a small percentage (4.0%). The generally early diagnosis of breast cancer is largely due to ability to feel breast lumps or see skin changes that may be cancer, greater awareness of breast cancer symptoms, the presence of a screening programme and rapid referral of suspected breast cancers to diagnostic services.

Over a fifth of colorectal cancers are diagnosed at a late stage (21% Stage IV in 2018). There has been little change between 2009 and 2018 in the proportion of colorectal cancers with early stage disease (15% Stage I in 2018). Bowel screening was introduced in Scotland for
50-74 year olds in 2007. A new bowel screening test (FIT) was introduced in November 2017, and a change from Dukes’ to TNM staging in the Scottish Cancer Registry began in January 2018, so a simple comparison of stages before and after the FIT test is not valid using these data.

Full staging of a cancer may take some time after a patient is initially suspected of having the disease. The pathological diagnosis – based on sampling the tumour – provides the most definitive information about cancer stage but investigations and tissue samples may take some time to be completed. It is difficult to say whether, in some cases, the stage at which the pathological diagnosis is made is more advanced than when cancer was initially suspected.

Cancer waiting times

Where a cancer is suspected or confirmed, it is desirable for a number of reasons that treatment begins as soon as possible. Measuring the association between waiting times and outcomes is complex. About a quarter of patients with lung and bowel cancer diagnoses, for example, are diagnosed following an emergency admission. These patients may not wait at all to be diagnosed but their outcomes are often poor and it would be better if they had not become so unwell as to need an emergency admission. The research evidence on the relationship between waiting times and outcomes for cancer is equivocal, probably because of two things: patients who are most ill are seen most quickly, and those that are less ill are seen less urgently; and for indolent cancers which may have been present for months or years, a further wait may make no difference to outcomes.

Cancer waiting times are measured for selected cancers in Scotland using two criteria against the start of treatment. A 62-day standard applies to GP referrals, cancer screening positive and self-referrals and a 31-day standard applies to all patients from the date a decision to treat a newly-diagnosed cancer is made. The 62-day standard is met for about 85% of eligible patients and the 31-day standard for about 96% of patients. There are targets for each standard to be achieved by 95% of patients and across the whole of Scotland. However, the 62-day target has not been met since 2012 while the 31-day target has sometimes been met – see Figure 5.
Figure 5: NHSScotland performance against the 31 and 62-day Cancer Waiting Times standards

Source: Cancer Waiting Times data

When considered by cancer site, cervical and urological 62-day waits are relatively long and breast screening patients among the shortest waits -
Figure 6. Colorectal screened patients wait longer than symptomatic patients.
Figure 6: Performance in NHSScotland against the 62-day standard, by cancer type (split by screened positive patients), 1 January to 31 March 2020

The differentials between cancers with respect to treatment times from decision to treat is quite small and over 90% are treated with 31 days. For breast and colorectal cancers, symptomatic patients begin treatment more quickly than those that are screen-detected. All ovarian cancer patients are treated with 31 days of the decision to treat them.

Source: Cancer Waiting Times data
Figure 7: Performance in NHSScotland against the 31-day standard, by cancer type (split by screened positive patients), 1 January to 31 March 2020

Source: Cancer Waiting Times data
Cancer treatment

A graph of treatment within the first 6 months after diagnosis, by mode of treatment and year is shown below - Figure 7. There has been an increase in treatments grouped as “other” – the remainder have changed little over time. The “other” group is probably largely biological therapies – newer systemic anti-cancer therapies that complement chemotherapy.

Figure 7: Percentage of all cancer patients in Scotland treated within 6 months of diagnosis by treatment modality¹ and year (2014-2018).

Source: Scottish Cancer Registry
¹ One patient may contribute to more than one treatment modality.

Mortality

Cancer mortality – the risk of dying from cancer in the population - is a product of the risk of developing cancer (incidence) and the risk of dying from that cancer (survival). The cancer mortality rate has been falling over time as incidence has decreased and survival improved. In 2018, there were 16,153 deaths from cancer in Scotland. The rate, or risk, of deaths from cancer has decreased by 10% over the period 2009 to 2018 with a greater decrease in men than women (12% and 7% decrease, respectively) - Figure 8. But the numbers are rising because of the growing size of the older population – Figure 9. As other causes of death have fallen more steeply over time, cancer has become the dominant cause of death in Scotland.
Table 1: Most common causes of death from cancer in Scotland in 2018: Rank, number, frequency, age-adjusted mortality rate and change in mortality rate since 2008

<table>
<thead>
<tr>
<th>Rank</th>
<th>Type of cancer</th>
<th>Number</th>
<th>Frequency</th>
<th>EASR&lt;sup&gt;1,2,3&lt;/sup&gt;</th>
<th>10 year % change&lt;sup&gt;4&lt;/sup&gt;</th>
<th>p-value&lt;sup&gt;5&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Males</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Trachea, bronchus and lung (C33-C34)</td>
<td>1,981</td>
<td>23.9%</td>
<td>84.8</td>
<td>-24.5</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>2</td>
<td>Colorectal (C18-C20)</td>
<td>941</td>
<td>11.3%</td>
<td>41.4</td>
<td>-10.8</td>
<td>0.0015</td>
</tr>
<tr>
<td>3</td>
<td>Prostate (C61)</td>
<td>923</td>
<td>11.1%</td>
<td>43.9</td>
<td>-8.6</td>
<td>0.0019</td>
</tr>
<tr>
<td>4</td>
<td>Oesophagus (C15)</td>
<td>584</td>
<td>7.0%</td>
<td>24.8</td>
<td>-9.3</td>
<td>0.0062</td>
</tr>
<tr>
<td>5</td>
<td>Pancreas (C25)</td>
<td>419</td>
<td>5.1%</td>
<td>18.1</td>
<td>+2.5</td>
<td>0.5812</td>
</tr>
<tr>
<td>6</td>
<td>Liver and intrahepatic bile ducts (C22)</td>
<td>384</td>
<td>4.6%</td>
<td>16.3</td>
<td>+55.2</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>7</td>
<td>Head and Neck (C00-C14, C30-C32)</td>
<td>332</td>
<td>4.0%</td>
<td>14.0</td>
<td>+9.9</td>
<td>0.1731</td>
</tr>
<tr>
<td>8</td>
<td>Bladder (C67)</td>
<td>308</td>
<td>3.7%</td>
<td>14.3</td>
<td>-6.1</td>
<td>0.2729</td>
</tr>
<tr>
<td>9</td>
<td>Stomach (C16)</td>
<td>273</td>
<td>3.3%</td>
<td>11.9</td>
<td>-33.0</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>10</td>
<td>Kidney (C64-C65)</td>
<td>241</td>
<td>2.9%</td>
<td>10.4</td>
<td>+0.1</td>
<td>0.9897</td>
</tr>
<tr>
<td></td>
<td>Other malignant neoplasms</td>
<td>1,906</td>
<td>23.0%</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td>All malignant neoplasms excl. non-melanoma skin cancer</td>
<td>8,292</td>
<td>100.0%</td>
<td>363.3</td>
<td>-12.1</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td></td>
<td><strong>Females</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Trachea, bronchus and lung (C33-C34)</td>
<td>1,999</td>
<td>25.4%</td>
<td>68.2</td>
<td>-9.6</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>2</td>
<td>Breast (C50)</td>
<td>993</td>
<td>12.6%</td>
<td>33.9</td>
<td>-15.8</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>3</td>
<td>Colorectal (C18-C20)</td>
<td>802</td>
<td>10.2%</td>
<td>27.1</td>
<td>-3.1</td>
<td>0.3803</td>
</tr>
<tr>
<td>4</td>
<td>Pancreas (C25)</td>
<td>392</td>
<td>5.0%</td>
<td>13.2</td>
<td>+0.9</td>
<td>0.8575</td>
</tr>
<tr>
<td>5</td>
<td>Ovary (C56)</td>
<td>387</td>
<td>4.9%</td>
<td>13.3</td>
<td>-15.8</td>
<td>0.0003</td>
</tr>
<tr>
<td>6</td>
<td>Oesophagus (C15)</td>
<td>289</td>
<td>3.7%</td>
<td>9.7</td>
<td>-11.0</td>
<td>0.0400</td>
</tr>
<tr>
<td>7</td>
<td>Non-Hodgkin lymphoma (C82-C86)</td>
<td>200</td>
<td>2.5%</td>
<td>6.7</td>
<td>+1.3</td>
<td>0.8060</td>
</tr>
<tr>
<td>8</td>
<td>Brain and other CNS (C70-C72, C75.1-C75.3)</td>
<td>194</td>
<td>2.5%</td>
<td>6.7</td>
<td>+5.4</td>
<td>0.4540</td>
</tr>
<tr>
<td>9</td>
<td>Liver and intrahepatic bile ducts (C22)</td>
<td>194</td>
<td>2.5%</td>
<td>6.6</td>
<td>+67.0</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>10</td>
<td>Corpus uteri (C54)</td>
<td>192</td>
<td>2.4%</td>
<td>6.5</td>
<td>+39.4</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td></td>
<td>Other malignant neoplasms</td>
<td>2,219</td>
<td>28.2%</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td>All malignant neoplasms excl. non-melanoma skin cancer</td>
<td>7,861</td>
<td>100.0%</td>
<td>266.6</td>
<td>-7.1</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td></td>
<td><strong>All persons</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Trachea, bronchus and lung (C33-C34)</td>
<td>3,980</td>
<td>24.6%</td>
<td>76.5</td>
<td>-18.5</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>2</td>
<td>Colorectal (C18-C20)</td>
<td>1,743</td>
<td>10.8%</td>
<td>34.2</td>
<td>-7.8</td>
<td>0.0270</td>
</tr>
<tr>
<td>3</td>
<td>Breast (C50)&lt;sup&gt;2&lt;/sup&gt;</td>
<td>1,001</td>
<td>6.2%</td>
<td>17.1</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>4</td>
<td>Prostate (C61)&lt;sup&gt;2&lt;/sup&gt;</td>
<td>923</td>
<td>5.7%</td>
<td>43.9</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>5</td>
<td>Oesophagus (C15)</td>
<td>873</td>
<td>5.4%</td>
<td>17.3</td>
<td>-9.8</td>
<td>0.0048</td>
</tr>
<tr>
<td>6</td>
<td>Pancreas (C25)</td>
<td>811</td>
<td>5.0%</td>
<td>15.7</td>
<td>+18.3</td>
<td>0.5048</td>
</tr>
<tr>
<td>7</td>
<td>Liver and intrahepatic bile ducts (C22)</td>
<td>578</td>
<td>3.6%</td>
<td>11.4</td>
<td>+58.8</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>8</td>
<td>Bladder (C67)</td>
<td>491</td>
<td>3.0%</td>
<td>10.1</td>
<td>-6.9</td>
<td>0.3997</td>
</tr>
<tr>
<td>9</td>
<td>Head and Neck (C00-C14, C30-C32)</td>
<td>474</td>
<td>2.9%</td>
<td>9.4</td>
<td>+12.2</td>
<td>0.0083</td>
</tr>
<tr>
<td>10</td>
<td>Stomach (C16)</td>
<td>454</td>
<td>2.8%</td>
<td>9.0</td>
<td>-32.1</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td></td>
<td>Other malignant neoplasms</td>
<td>4,825</td>
<td>29.9%</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td>All malignant neoplasms excl. non-melanoma skin cancer</td>
<td>16,153</td>
<td>100.0%</td>
<td>314.9</td>
<td>-10.1</td>
<td>&lt;0.0001</td>
</tr>
</tbody>
</table>

Source: National Records of Scotland (NRS)

'x' = not applicable.

1. EASR: age- and sex-standardised (using the 2013 European Standard Population) mortality rate per 100,000 person years at risk.
2. The European Standard Population (ESP), which was first used in 1976, was revised in 2013. Figures using ESP1976 and ESP2013 are not comparable.
3. European Age-Sex Standardised Rate (EASR), calculated using ESP2013 and using 5-year age groups 0-4, 5-9 up to an upper age group of 90+.
4. Estimated 10-year change in age-adjusted mortality rates, calculated using Poisson regression analyses.
5 p-value is the probability that the 10-year percentage change occurred by chance. A p-value of less than 0.05 indicates that the change is statistically significant.

6 Percentage change in mortality is not shown in the 'All Persons' table for cancers occurring mainly or only in one sex.

Figure 8: Cancer mortality in Scotland, 1993-2018. Number of deaths and age-adjusted mortality rate.

Source: National Records of Scotland (NRS)

Cancers of the lung, colorectum, breast, prostate and oesophagus are responsible for more than half of all deaths from cancer in Scotland.

Figure 9. This reflects partly that they occur commonly and in some cases that survival is poor.
Prevalence

The lifetime risk of developing cancer in Scotland is 41%. The number of people in Scotland diagnosed with some form of cancer in the last 20 years who are still alive is estimated to be approximately 200,000 individuals (190,942) or approximately 3.5% of the population. This figure reflects that over time there has been a growing number of people who live to older ages, develop cancer and then survive longer. There are implications for follow-up and support of this increasing number of cancer survivors.
Place of death

In the most recently analysed data (2018), 41% of people who died from cancer did so in an NHS hospital, a fall of 8% over the previous decade while 30% died at home. In the most recent period (for 2014-2018) 30% who lived in urban areas died at home and 21% died in a hospice. In rural areas, 34% died at home and 15% died in a hospice.

Survival

Survival from cancer reflects a range of things – including the patient's general health, the characteristics of the cancer, and treatment received. There are also complex questions about how to separate deaths from non-cancer conditions (which are often more prevalent among people with cancer) from those directly due to cancer. Each may be amenable to very different approaches. For example, earlier detection may be achieved through screening or education; while improvements in treatment may require changes in the organisation and resources available for healthcare.

One thing remains consistent: survival from cancer in the UK is persistently poorer than in other developed countries. Recent evidence from the International Cancer Benchmarking Partnership (ICBP) showed that while survival from cancer has continued to improve in the UK over time (up to patients diagnosed in 2014), it has not caught up with higher-performing countries such as Australia or Canada. The scale of improvement in survival in the UK is similar to other countries but it would require to be greater to change our league position. There is evidence that patients in the UK are diagnosed at a later stage than in countries with better survival; however, survival remains better even when patients at the same stage are compared. This suggests that earlier detection alone will not level-up cancer survival in Scotland with better-performing countries and that other approaches are also needed.

The last report on cancer survival in Scotland was published in 2015 and described survival in patients diagnosed up to the end of 2011. The largest improvements in survival were found for multiple myeloma, colorectal cancer, non-Hodgkin lymphoma, kidney cancers, leukaemias and female breast cancers. It reported generally increasing trends in survival over time between 1987-1991 and 2007-2011. In men (Figure 11), five-year survival was highest for testicular cancers and lowest for pancreatic cancers. In women (Figure 12),

survival was highest for malignant melanomas of the skin and also lowest for pancreatic cancers.
Figure 11: Age-standardised relative survival (%) at 1 and 5 years after diagnosis by cancer in Scotland (males); Patients aged 15-99, diagnosed 2007-2011

Source: Scottish Cancer Registry
1. These rates are age-standardised to the International Cancer Survival Standard (ICSS).
2. Cases diagnosed in 2009-2011 do not have 5 years' follow-up. Patients have been followed up to 31st December 2013.
Figure 12: Age-standardised\(^1\) relative survival (\%) at 1 and 5 years after diagnosis by cancer in Scotland (females); Patients aged 15-99, diagnosed 2007-2011\(^2\)

Source: Scottish Cancer Registry

1. These rates are age-standardised to the International Cancer Survival Standard (ICSS).
2. Cases diagnosed in 2009-2011 do not have 5 years’ follow-up. Patients have been followed up to 31st December 2013.