Welsh Cancer Intelligence and Surveillance Unit
Uned Gwybodaeth a Gwyliadwriaeth Canser Cymru

GIG CYMRU NHS WALES | Iechyd Cyhoeddus Cymru Public Health Wales

Cancer in Wales

www.wcisu.wales.nhs.uk

Cancer survival in Wales, 1995-2016

Official and statutory statistics

Latest official statistics for one-year and five-year population-based net cancer survival for diagnosis years 1995-1999 to 2012-2016

Published 9.30am 11 July 2019

Key findings

Overall cancer survival continues to increase in Wales but this trend is slowing down

Five-year survival in the most deprived areas is only three-quarters of that in least deprived areas, with little recent improvement in inequality

Overall cancer survival is slightly higher in women than men, but the gap is narrowing

Melanoma and cancers of the prostate and breast have the highest survival rates in Wales

One-year survival has improved for most cancer types

The largest significant improvements in five-year survival was for ovarian, pancreatic, and lung cancers

One-year colorectal cancer survival inequality has decreased slightly but remains twice as wide as for lung cancer

The gap between lower five-year survival in the most disadvantaged areas and better survival in the least disadvantaged is widening for breast and lung cancers

Cancer survival decreases as stage at diagnosis becomes later - the gradient of the decrease from earlier to later stages varies considerably between different cancer types

There is comparatively little inequality in cancer survival between populations of health board areas, though there are a few exceptions

There are no significant differences in one-year cancer survival between Wales and England for most cancer types, apart from lung cancer

For most cancer types there are no significant differences in five-year survival between Wales and England apart from leukaemia, and cancers of the prostate and stomach

In the CONCORD-3 international study, for five-year survival, Wales ranks in the lower half of 32 selected countries for the twelve types of cancer, except oesophagus – one or more of the other UK countries is ranked in the upper half for only 7 of the twelve cancers

Many factors combine to explain the differences in cancer survival

The key policy on cancer in Wales is set out in the Cancer Delivery Plan 2016-2020

Things you should know

All cancers refers to all cancer types combined excluding non-melanoma skin cancer (ICD10 codes C00-C96 excluding C44)

Survival refers to population-based age standardised net cancer survival unless otherwise stated for Wales, and unstandardised net survival for health board, area deprivation and stage data.

Breast cancer refers to female breast cancer only

Melanoma refers to melanoma of the skin only (i.e. not retina, for example)

Survival by **health board** uses the new boundaries that came into effect on the 1st April 2019 for all the periods analysed - Bridgend transferred from Abertawe Bro Morgannwg University health board (renamed Swansea Bay University health board) to Cwm Taf University health board (renamed Cwm Taf Morgannwg University health board).

Statistical significance If a difference in the survival rates between populations is statistically significant, it means that difference is unlikely to have occurred due to chance alone, and that we can be more confident that we are observing a 'true' difference. In this commentary we use the conventional arbitrary cut-off of less than 5% chance to mean statistically significant. Just because a difference is statistically significant doesn't necessarily mean that it is large or important – that can depend on our judgement and other things. Multiple testing has not been taken into account and so 1 in 20 tests will be statistically significant by chance alone.

After collaboration within the UK and Ireland Association of Cancer Registries, all UK country routinely published survival statistics can be broadly compared because we are using the same statistical method and diagnosis periods. The new method will allow us to estimate five-year survival up to the diagnosis year of 2016, which is much more contemporary than previously possible.

One and five-year net survival by health board has been analysed for the first time in Wales for many of the cancer types. However, caution is advised when interpreting these figures due to the small numbers involved. Development of a more robust, new statistical method for calculating survival at small geography levels is still ongoing.

Further information about the definitions can be found at www.wcisu.wales.nhs.uk/definitions-icd-10-codes

Overall cancer survival continues to increase in Wales but this trend is slowing down

For all cancers combined, the long-term trend of increasing one and five-year survival continues, but for the most recent years of diagnosis the rate of improvement is slowing down slightly.

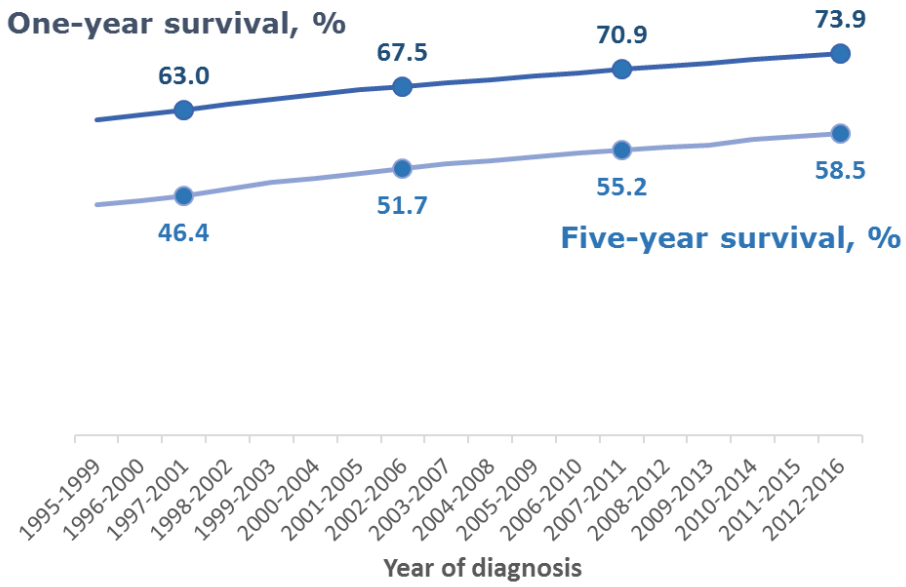
One-year survival increased by 3.0 percentage points over five years, from 70.9% for people diagnosed 2007-2011 to 73.9% for the most recent diagnosis period, 2012-2016. Over ten years this increase was 6.4 percentage points.

Five-year survival increased by 3.3 percentage points, from 55.2% to 58.5% from 2007-2011 to 2012-2016. Over ten years this increase was 6.8 percentage points.

All these improvements are statistically significant.

Figure 1: One-year and five-year cancer survival continues to increase in Wales

All cancers combined excluding non-melanoma skin cancer, age-standardised net survival (%), persons



Source: Welsh Cancer Intelligence and Surveillance Unit's National Cancer Registry www.wcisu.wales.nhs.uk

Five-year survival in the most deprived areas is only three-quarters of that in least deprived areas, with little recent improvement in inequality

During the diagnosis years of 2006-2010, for all cancers combined, there was a gradient of worsening one-year survival moving from the least to the most deprived fifth of small areas in Wales, with a 13.4 percentage point difference in survival. Since then, there has been a gradual decrease in the gap to 11.5 percentage points in 2012-2016.

Inequality in cancer survival is wider for five-year survival, with a 16.8 percentage point difference in 2012-2016, and little improvement seen over the years. By 2012-2016, five-year survival in the most deprived areas was only three-quarters of that in the least deprived areas.

Overall cancer survival is slightly higher in women than men, but the gap is narrowing

Although cancer survival is slightly lower in men than women, one-year survival in men increased by 3.1 percentage points to 72.9%, and by 2.9 percentage points to 74.4% in women, during the diagnosis periods of 2007-2011 to 2012-2016.

Corresponding five-year survival increases were of similar size. In men it increased by 3.6 percentage points to 57.1%, and by 3.0 percentage points to 59.4% in women.

All these improvements are statistically significant.

Melanoma and cancers of the prostate and breast have the highest survival rates in Wales

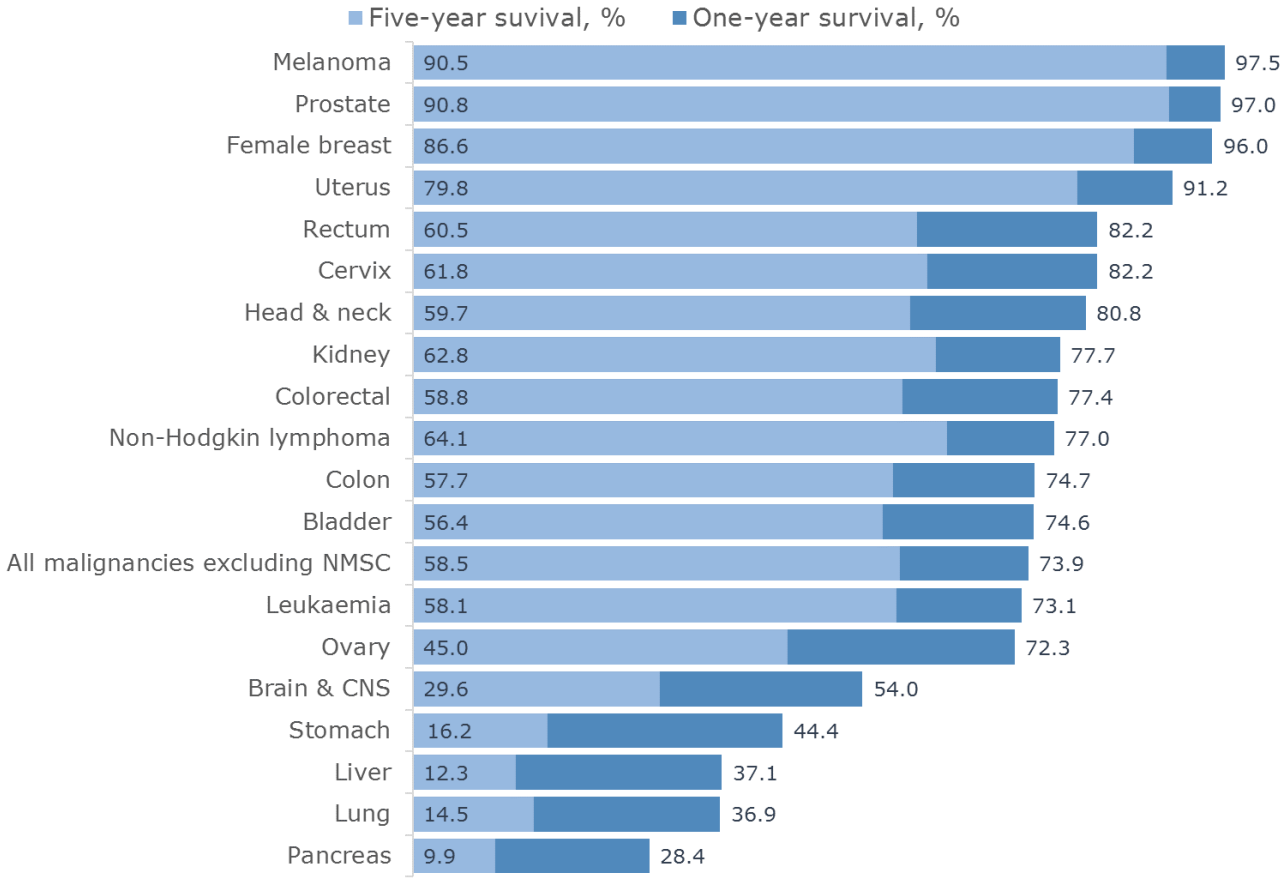
The cancer with the highest survival is melanoma. One-year survival from melanoma is 97.5%, but this decreases to 90.5% five years after diagnosis. Prostate cancer has a very similar survival profile.

Breast cancer also has a similar one-year survival at 96.0%, but its five-year survival falls to 86.6%, a greater difference compared to melanoma or prostate cancer.

Liver, lung and pancreatic cancers have the lowest survival. All three have a low one-year survival with a further large decrease in survival five years after diagnosis. For example, one-year lung cancer survival is 36.9%, but is only 14.5% at five-years.

Figure 2: Survival varies widely between types of cancer

Age-standardised, one-year and five-year net survival (%), by cancer type, persons, Wales, 2012-2016



NMSC: non-melanoma skin cancer
Source: Welsh Cancer Intelligence and Surveillance Unit's National Cancer Registry www.wcisu.wales.nhs.uk

One-year survival has improved for most cancer types

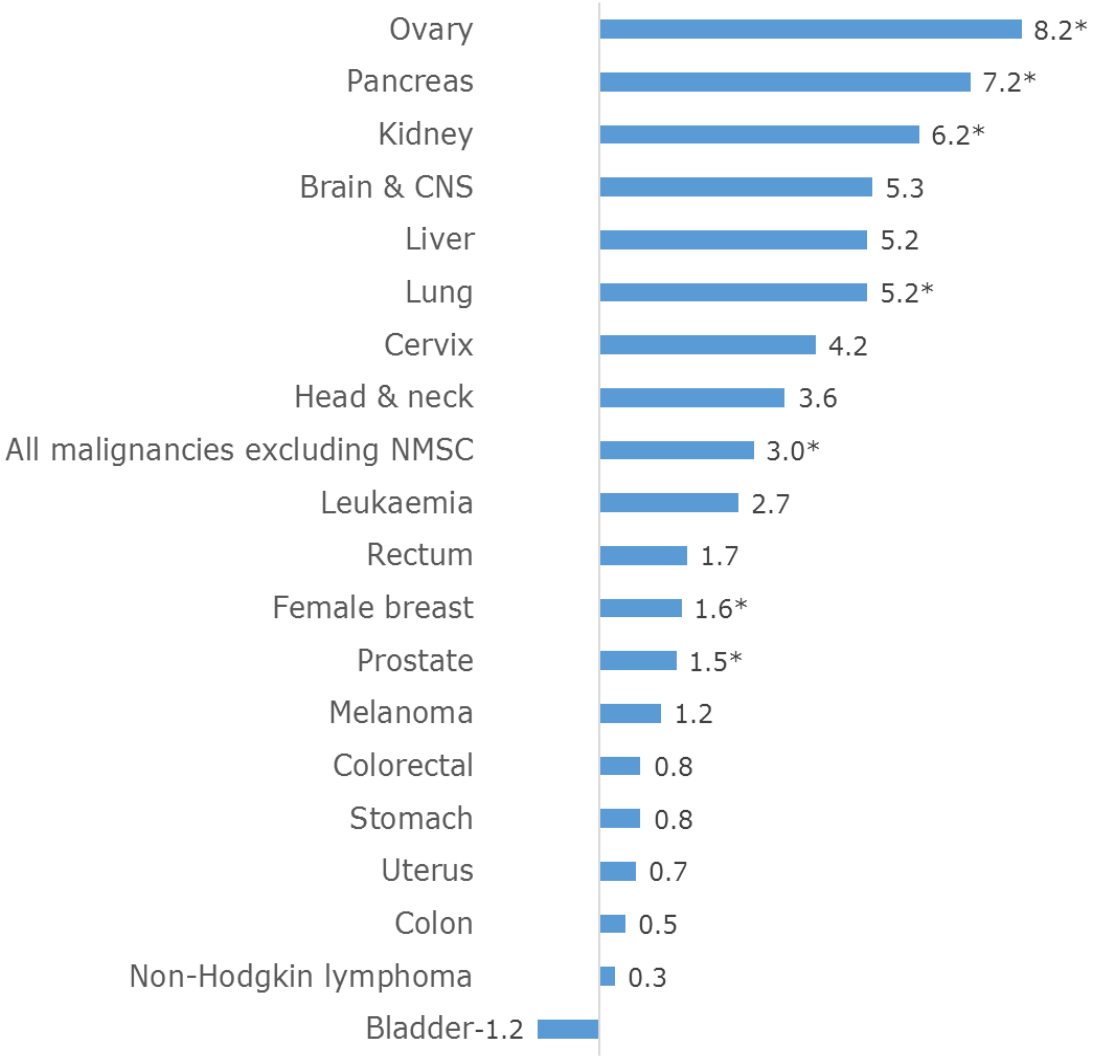
Cancers that had the largest percentage point increases during the five year period to 2012-2016 tended to be cancers with low or very low survival.

Cancer of the ovary showed the largest increase in one-year survival of 8.2 percentage points over this period, followed by pancreas (7.2 percentage points) and kidney (6.2 percentage points) cancers.

Lung cancer is one of the most common cancers in Wales, and has tended to have a low survival rate. However, its one-year survival improved by 5.2 percentage points over the same five years.

Cancers that initially had a higher survival tended to have much smaller percentage point increases over time. One-year survival increased by 1.6 percentage points for breast cancer, and by 1.5 percentage points for prostate cancer. Colorectal (bowel) cancer, however, has a moderate one-year survival rate (77.4% for the latest period) compared to these cancers, but only had a small, non-statistically significant increase of 0.8 percentage points between 2007-2011 and 2012-2016 diagnosis periods.

Figure 3: Percentage point increase in age-standardised one-year survival for different types of cancer between diagnosis years 2007-2011 and 2012-2016



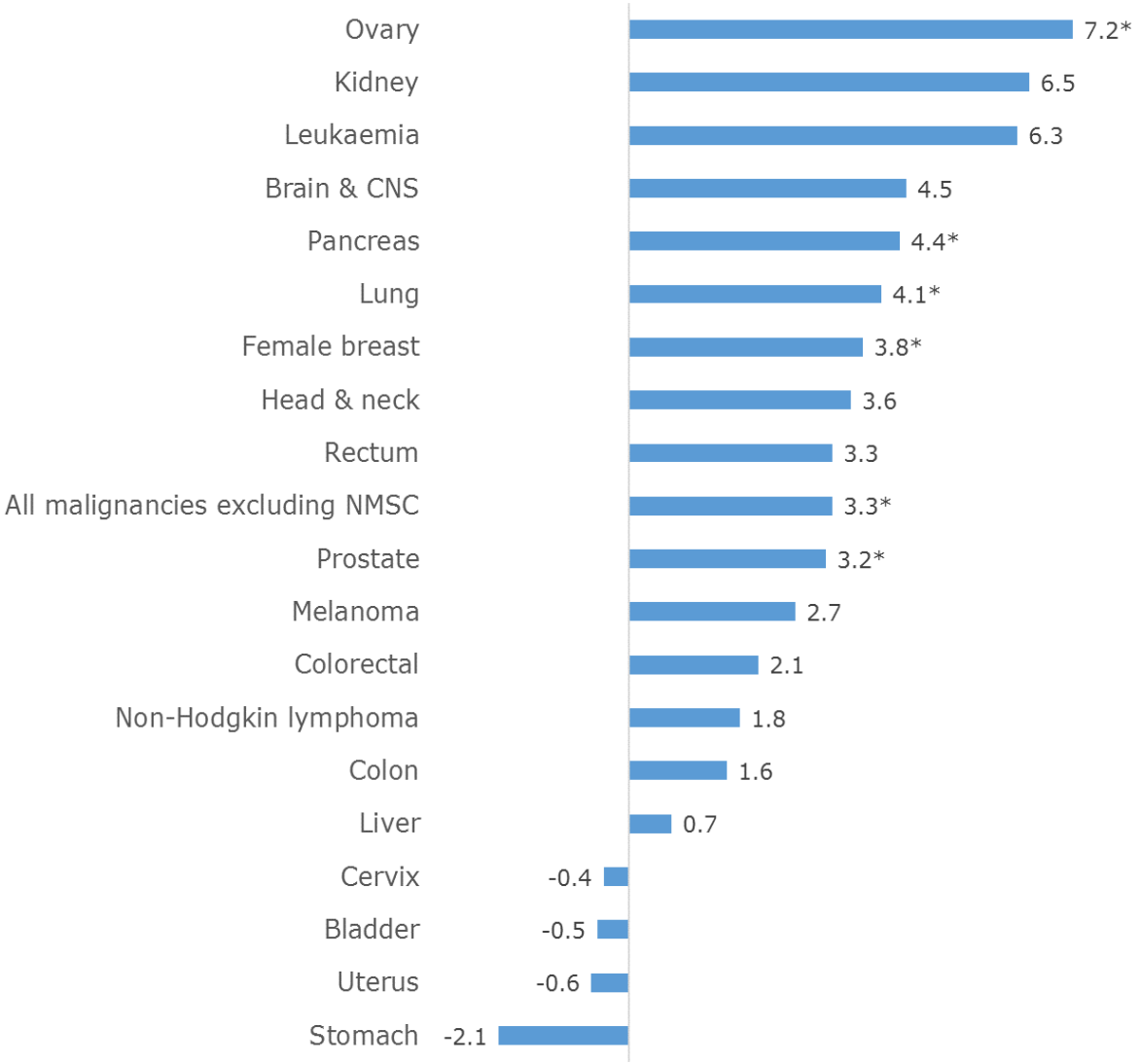
* Statistically significant at the 5% level
NMSC: non-melanoma skin cancer
Source: Welsh Cancer Intelligence and Surveillance Unit's National Cancer Registry www.wcisu.wales.nhs.uk

The largest significant improvements in five-year survival was for ovarian, pancreatic, and lung cancers

Increases in five-year survival for breast and prostate cancer were significant and larger than their improvements in one-year survival from 2007-2011 to 2012-2016 diagnosis periods. However, the small improvement of 2.1 percentage points in five-year survival for colorectal (bowel) cancer did not reach statistical significance.

Pancreatic and lung cancers had comparatively large statistically significant percentage point increases in five-year survival over the same time period. The highest increase was for ovarian cancer at 7.2 percentage points.

Figure 4: Percentage point increase in age-standardised five-year survival for different types of cancer between diagnosis years 2007-2011 and 2012-2016

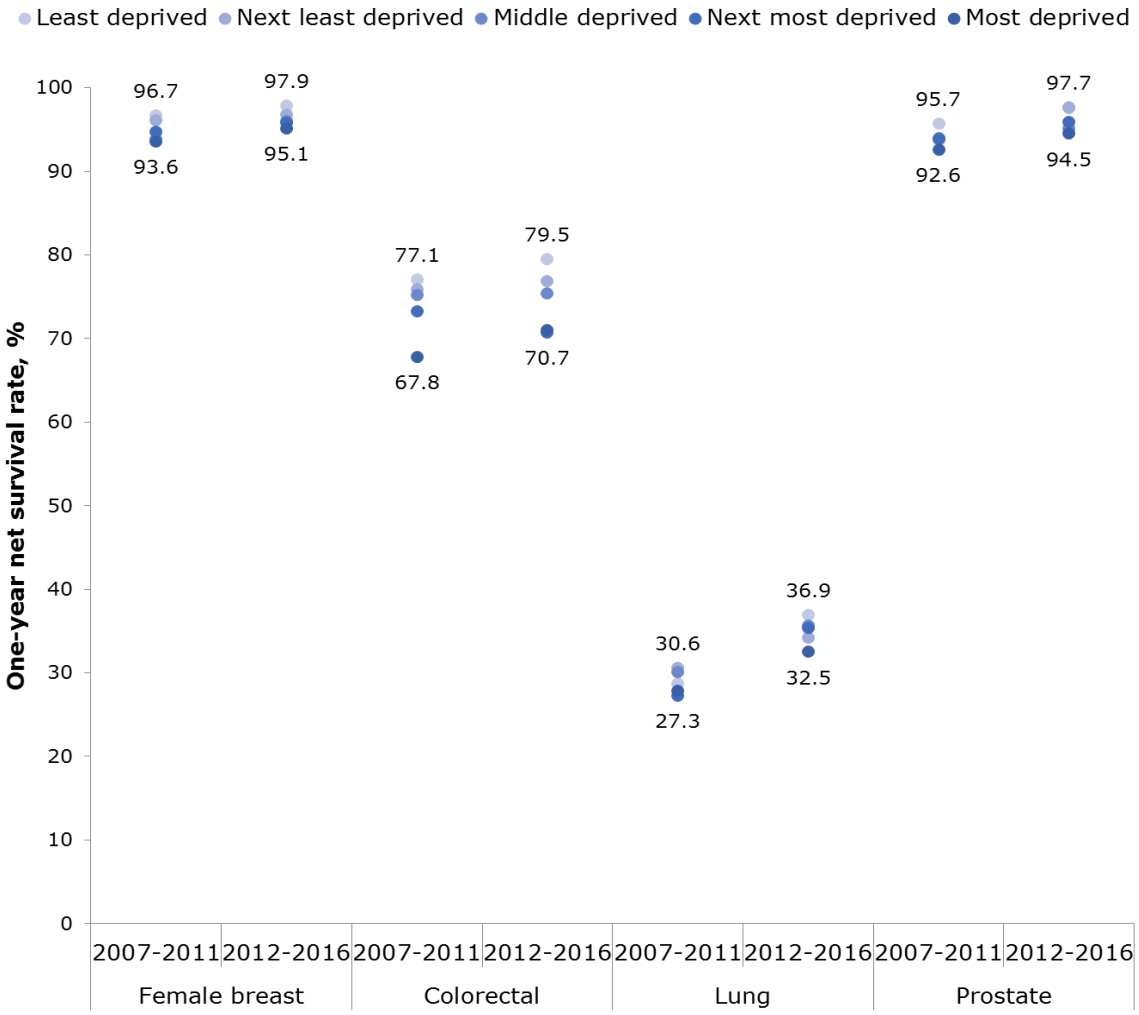


* Statistically significant at the 5% level
NMSC: non-melanoma skin cancer
Source: Welsh Cancer Intelligence and Surveillance Unit's National Cancer Registry www.wcisu.wales.nhs.uk

One-year colorectal cancer survival inequality has decreased slightly but remains twice as wide as for lung cancer

The gap between lower five-year survival in the most disadvantaged areas and better survival in the least disadvantaged is widening for breast and lung cancers

Figure 5: Trends in area deprivation inequalities in one-year net survival for the most common cancers



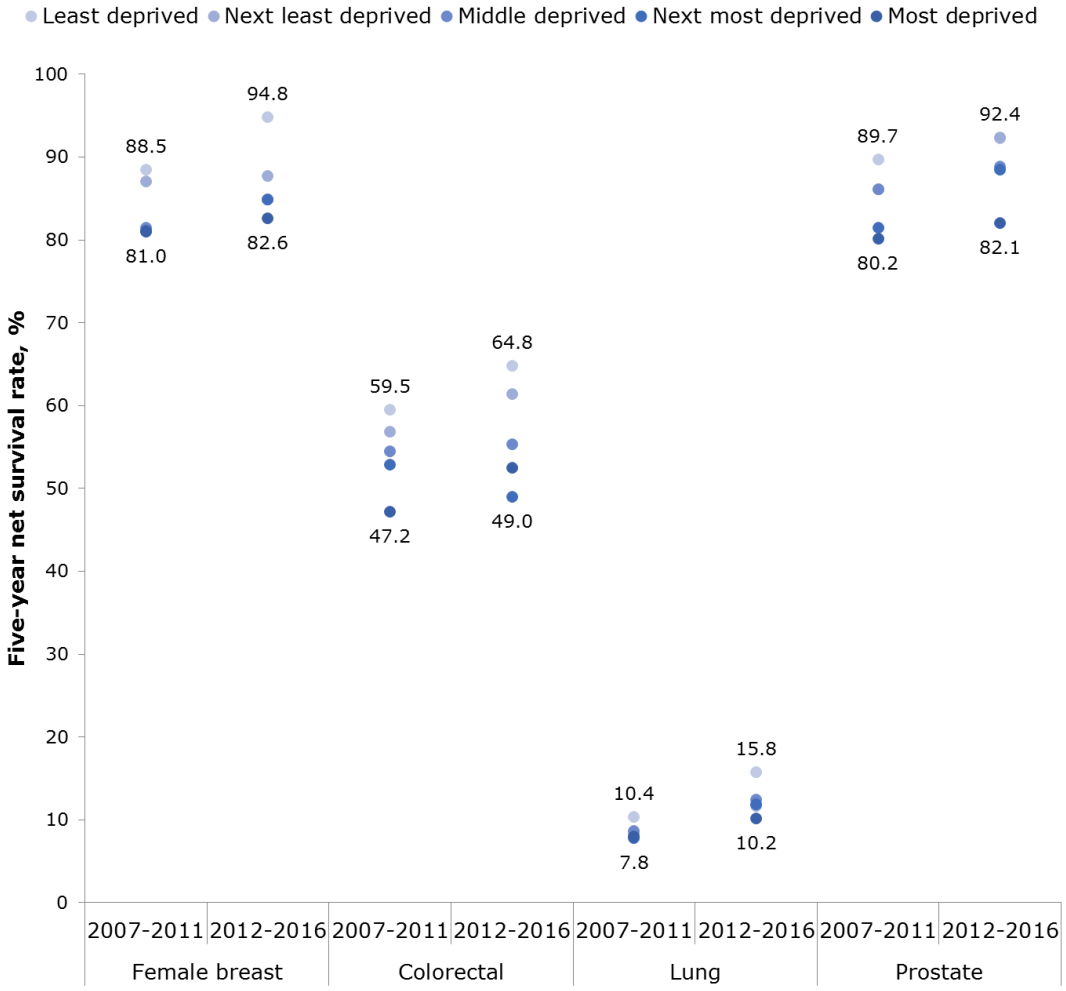
There was a 4.4 percentage point difference in one-year lung cancer survival, and a 5.6 percentage point difference in five-year survival by diagnosis years 2012-2016, with the highest survival being in the least deprived fifth of areas of Wales, and the lowest in the most deprived areas, with no clear gradient in between.

The gap in five-year lung cancer survival is widening following several years of increasing survival in the least deprived fifth of areas and, in comparison, little progress in other areas. Most recently, there has been a flattening-off in the least deprived areas and a decrease in the most deprived areas.

Inequalities in colorectal (bowel) cancer survival are wider than lung cancer. For one-year survival the survival gap by area deprivation is almost twice as wide, and for five-year survival, the gap is over twice as wide than for lung cancer.

Shorter-term one-year colorectal cancer survival inequality has decreased slightly since 2007-2011, with a small improvement in the most deprived areas and a small decrease in the least deprived – which still has the highest survival. But there has been little change in other areas, with the next most deprived fifth of areas showing a small decreased survival which is now lower than the most deprived areas. There is a similar pattern in medium-term five-year survival, although the overall gap widened slightly.

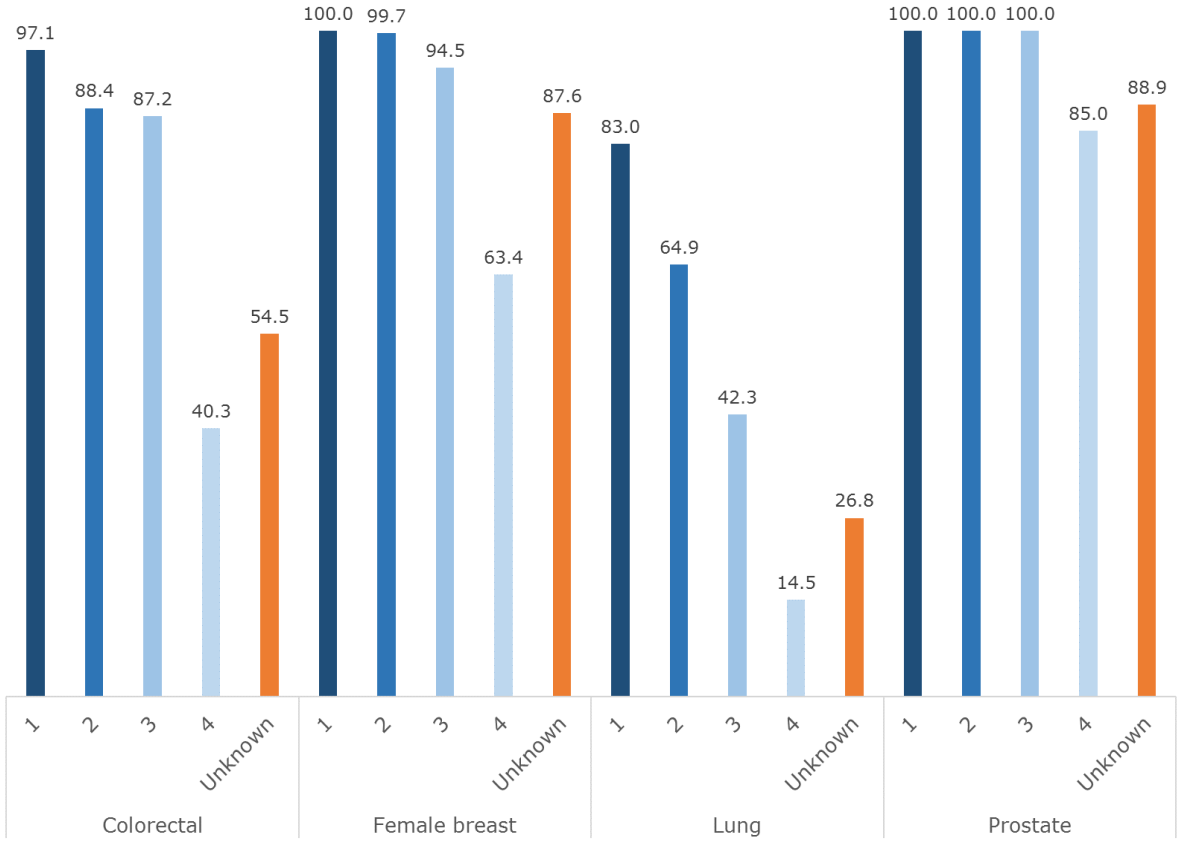
Figure 6: Trends in area deprivation inequalities in five-year survival for the most common cancers



Breast cancer tends to be more common in women living in better off areas, and survival is the highest in those areas, compared to the most deprived. The inequality is quite narrow in the short term, with survival comparatively high in areas of all deprivation levels. But five-year survival shows wide and widening inequalities – with a 7.5 percentage point difference in 2007-2011 widening to a 12.2 percentage point survival advantage in the least deprived areas by 2012-2016, after a large improvement in the least deprived fifth of areas, and little change in all the other areas.

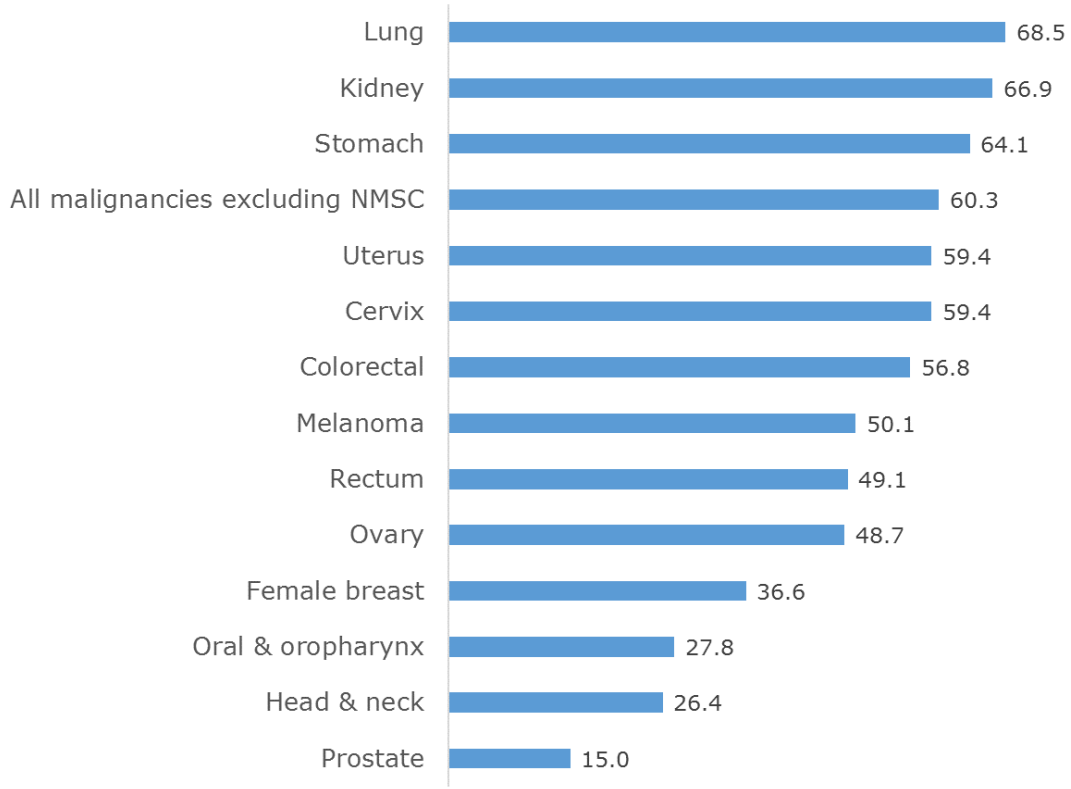
Cancer survival decreases as stage at diagnosis becomes later - the gradient of the decrease from earlier to later stages varies considerably between different cancer types

Figure 7: One-year net survival (%) for most common cancers by stage at diagnosis, for diagnosis years 2012-2016



Source: Welsh Cancer Intelligence and Surveillance Unit's National Cancer Registry www.wcisu.wales.nhs.uk

Figure 8: Percentage point difference in one-year net survival between stage 1 and stage 4 for different cancer types, for diagnosis years 2012-2016



For most types of cancer, one-year survival decreases as stage at diagnosis becomes later - from stage one through to stages two, three and four. The gradient of the decrease from earlier to later stages varies considerably between different cancer types.

Most of the cancer types that we analysed have a high one-year survival rate above 90% if diagnosed in stage one. Lung cancer has a modest 83.0% stage one one-year survival, as stomach cancer (82.6%) does.

For many of the cancer types we have included, the largest decrease in survival occurred moving from stage three to stage four. For example, one-year survival from prostate cancer remained at 100% for stages one to three, and then fell to 85.0% for stage four. For breast cancer, one-year survival remains relatively high in stage three (94.5%), but drops markedly to 63.4% in stage four.

Cervical cancer has high one-year survival in stages one and two, well above 90%. It stays relatively high in stage three (86.2%), but falls sharply to only 39.7% in stage four. There is a similar pattern for melanoma.

However, for some cancers, survival fell quite markedly after stage one at diagnosis. Although colorectal cancer has a very high stage one survival (97.1%), this drops by almost ten percentage points in stage two (88.4%). There is a further large drop in survival between stages three and four (87.2% to 40.3%).

In contrast, in general, and in the medium-term, there were sharper declines in five-year survival. For example, for lung cancer five-year survival declined steeply from 45.6% in stage one, 27.6% in stage two, then 9.8% until reaching 1.8% in stage four.

There is comparatively little inequality in cancer survival between populations of health board areas, though there are a few exceptions

In contrast to the inequality in cancer survival observed across Wales in terms of the level of area deprivation where patients live, there is comparatively little statistically significant inequality between the resident populations of health board areas and Wales as a whole, though there are a few exceptions.

For one-year survival, kidney cancer survival is significantly higher than Wales (76.7%) in the Aneurin Bevan University Health Board area (83.8%), and significantly lower in the Besti Cadwaladr University Health Board area (68.7%).

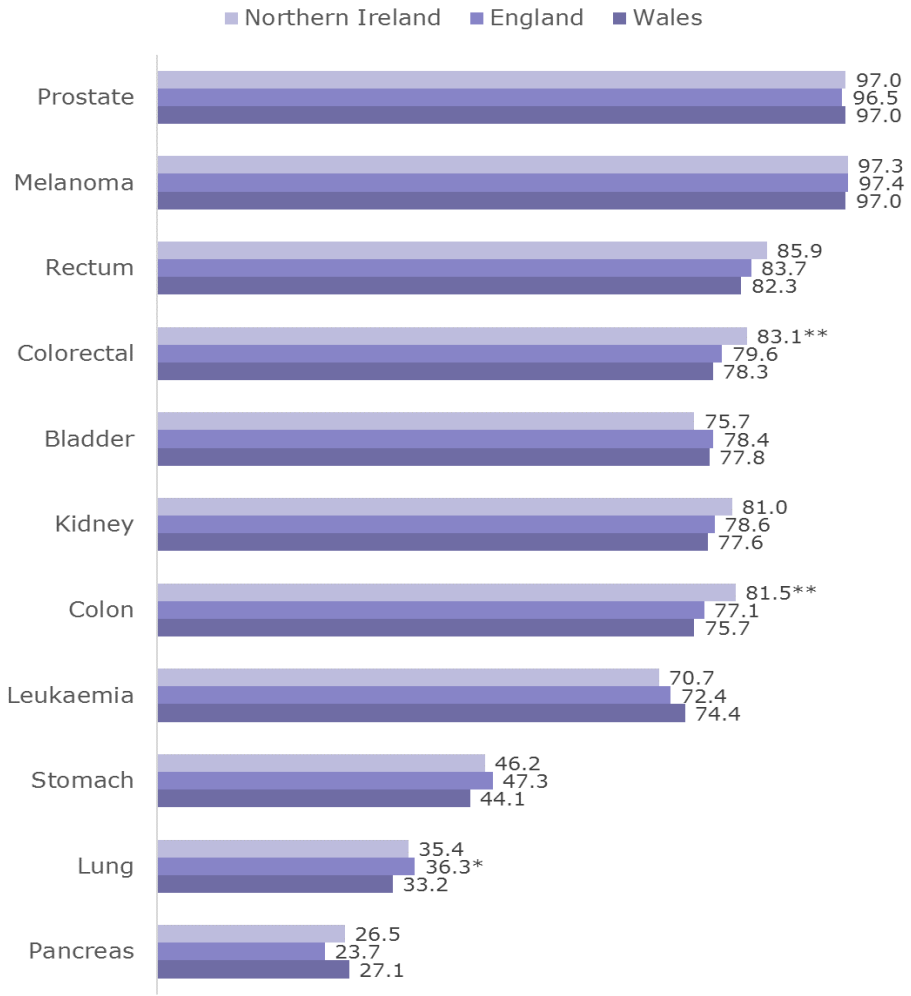
Women living in the Cardiff and Vale University Health Board area (82.8%) have a significantly higher five-year cervical cancer survival rate than that for Wales (67.6%) as a whole.

There are no significant differences in one-year cancer survival between Wales and England for most cancer types, apart from lung cancer

Figure 9: Cancer one-year age-standardised net survival rates (%) for men in England, Wales and Northern Ireland for years of diagnosis 2012-2016

** England statistically significantly higher than Wales*

*** Northern Ireland statistically significantly higher than Wales and England*



Source: UK official/national statistics from population-based cancer registries
England:
https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/conditionsanddiseases/methodologies/theimpactofupdatingcancersurvivalmethodologiesfornationalestimates
Northern Ireland:
https://www.qub.ac.uk/research-centres/nicr/CancerInformation/official-statistics/BySite/
Wales:
https://public.tableau.com/profile/welsh.cancer.intelligence.and.surveillance.unit#!/

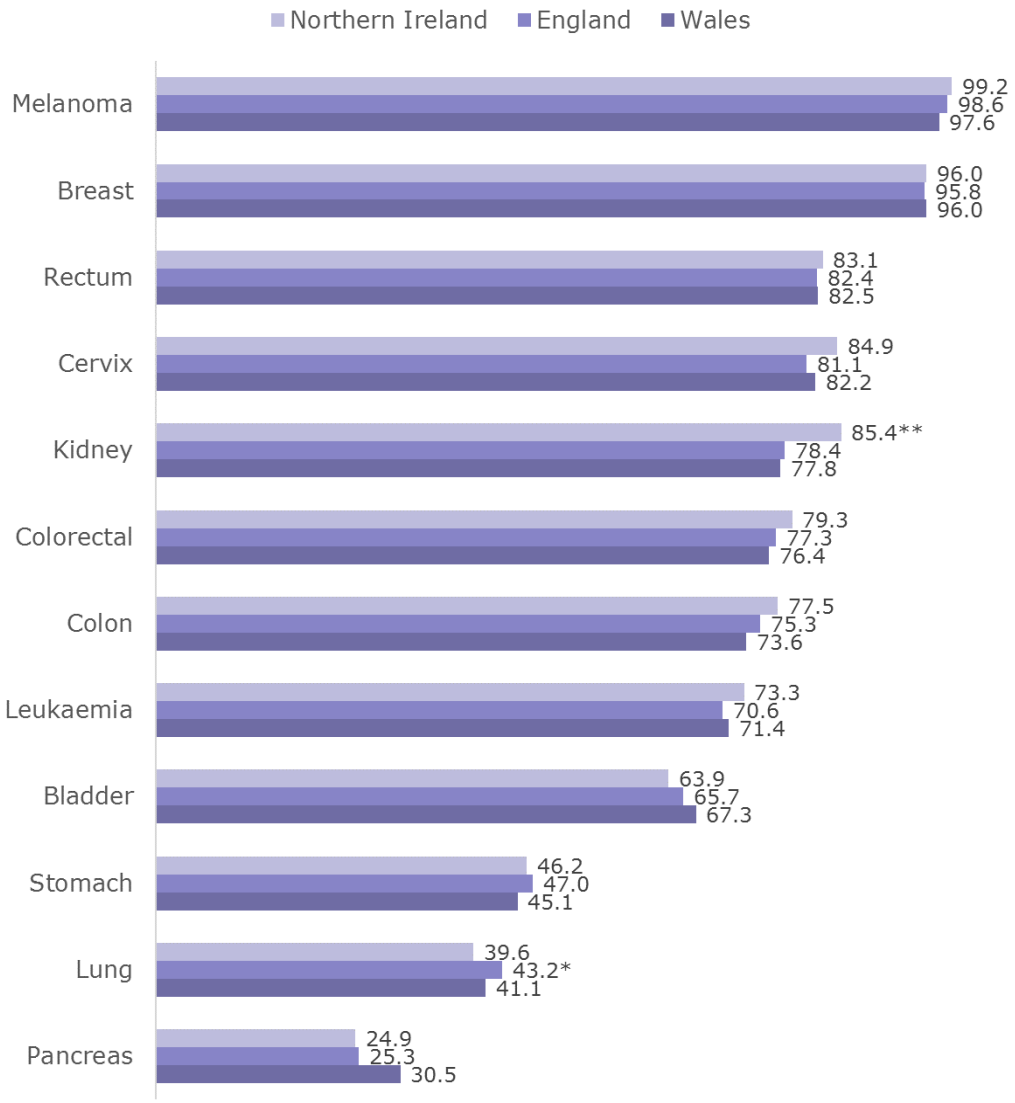
There are no statistically significant differences in one-year survival between Wales and England apart from lung cancer in men (3.1 percentage points higher in England) and lung cancer in women (2.1 percentage points higher in England).

In Northern Ireland, men's colorectal (bowel) and colon cancer one-year survival is statistically significantly higher than in Wales and England.

Women's one-year survival from colorectal (bowel) and kidney cancer is statistically significantly higher in Northern Ireland than for Wales and England.

Figure 10: Cancer one-year age-standardised net survival rates (%) for women in England, Wales and Northern Ireland for years of diagnosis 2012-2016

** England statistically significantly higher than Wales*
*** Northern Ireland statistically significantly higher than Wales and England*
(only significant results involving Wales are highlighted)



Source: UK official/national statistics from population-based cancer registries
England:
https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/conditionsanddiseases/methodologies/theimpactofupdatingcancersurvivalmethodologiesfornationalestimates
Northern Ireland:
https://www.qub.ac.uk/research-centres/nicr/CancerInformation/official-statistics/BySite/
Wales:
https://public.tableau.com/profile/welsh.cancer.intelligence.and.surveillance.unit#!/

For most cancer types there are no significant differences in five-year survival between Wales and England apart from leukaemia, and cancers of the prostate and stomach

Scotland is yet to publish, but at the time of writing, the latest survival statistics are available for England and now Wales for one and five-year survival, but for Northern Ireland only one-year survival is available.

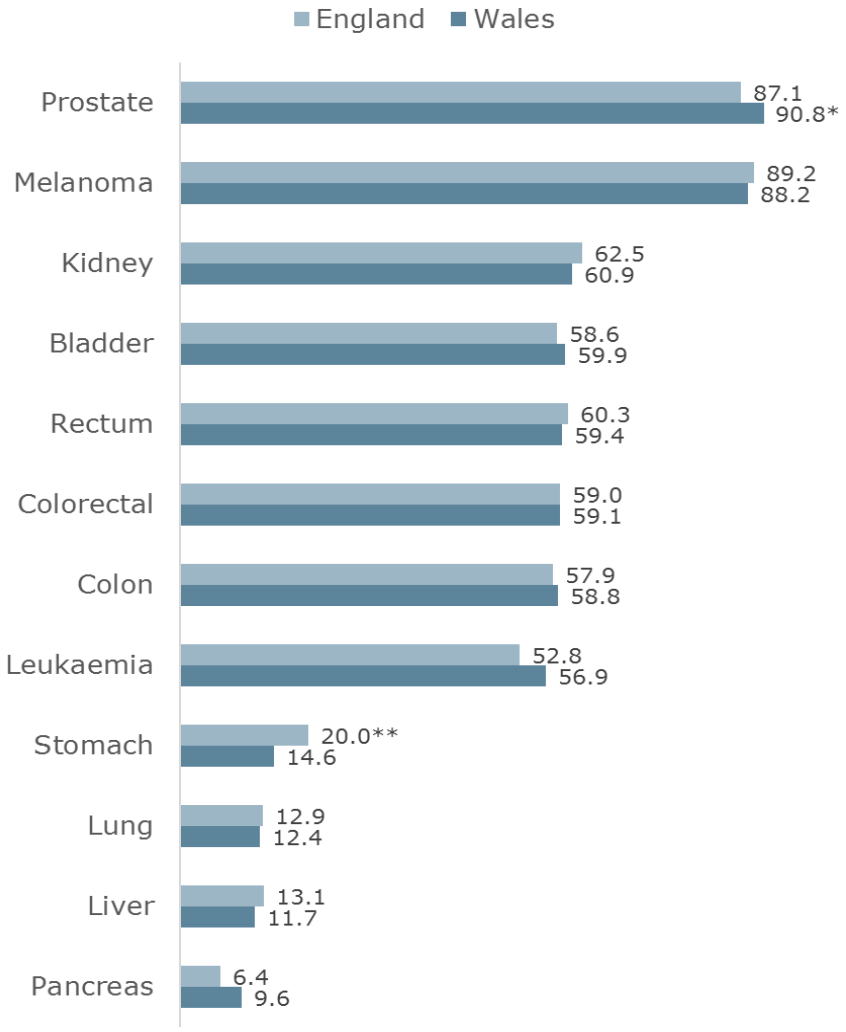
In Wales, five-year prostate cancer survival is 3.7 percentage points higher than in England. Amongst women in Wales for leukaemias as a whole group, five-year survival is 7.5 percentage points higher than women in England.

In contrast, there is a 5.4 percentage point five-year survival advantage amongst men in England compared to those in Wales for stomach cancer.

Figure 11: Cancer five-year age-standardised net survival rates (%) for men in England and Wales for years of diagnosis 2012-2016

* *Wales statistically significantly higher than England*

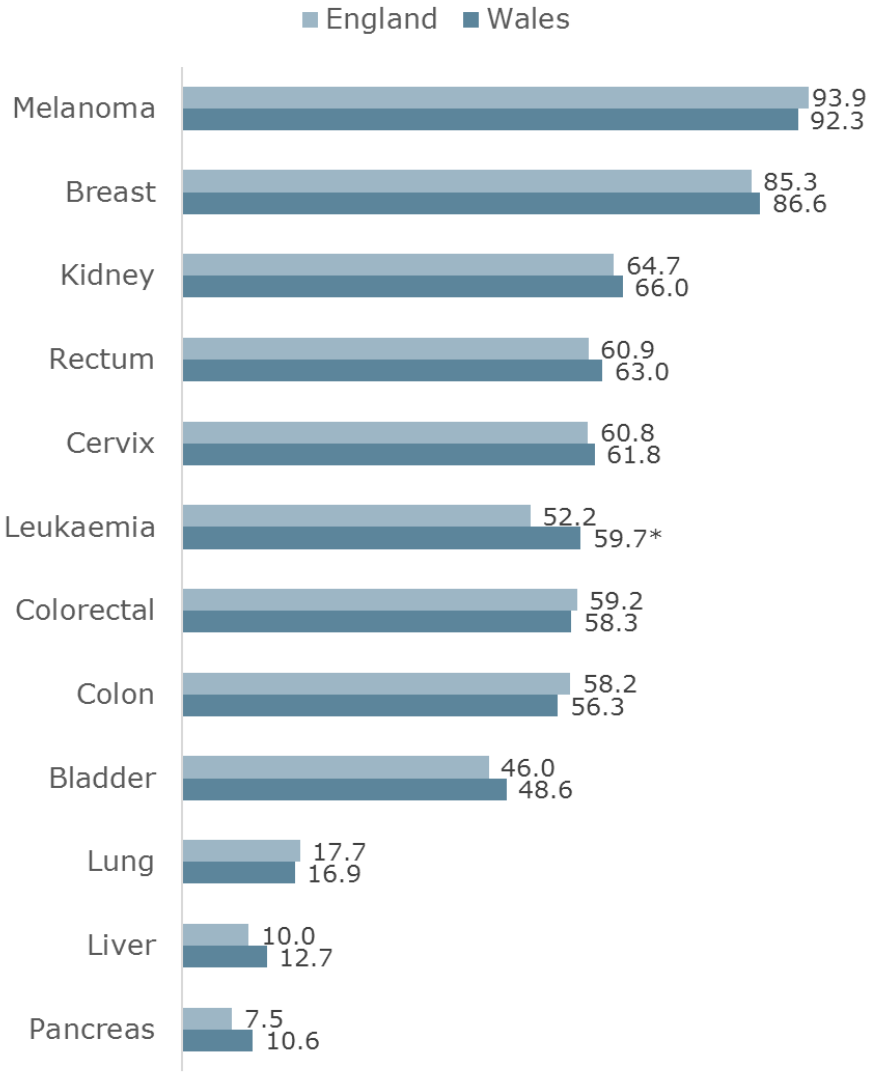
** *England statistically significantly higher than Wales*



Source: UK official/national statistics from population-based cancer registries
England:
https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/conditionsanddiseases/methodologies/theimpactofupdatingcancersurvivalmethodologiesfornationalestimates
Wales:
https://public.tableau.com/profile/welsh.cancer.intelligence.and.surveillance.unit#!/

Figure 12: Cancer five-year age-standardised net survival rates (%) for women in England and Wales for years of diagnosis 2012-2016

** Wales statistically significantly higher than England*



Source: UK official/national statistics from population-based cancer registries

England:

https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/conditionsanddiseases/methodologies/theimpactofupdatingcancersurvivalmethodologiesfornationalestimates

Wales:

https://public.tableau.com/profile/welsh.cancer.intelligence.and.surveillance.unit#!/

In the CONCORD-3 international study, for five-year survival, Wales ranks in the lower half of 32 selected countries for the twelve types of cancer, except oesophagus – one or more of the other UK countries is ranked in the upper half for only 7 of the twelve cancers

The latest available international five-year net cancer survival statistics were published in the *Lancet* in January 2018 – Allemani et al, Global surveillance of trends in cancer survival 2000-2014 (CONCORD-3): analysis of individual records for 37 513 025 patients diagnosed with one of 18 cancers from 322 population-based registries in 71 countries.

For a variety of reasons, by the time international survival studies are published they lag behind the latest available diagnosis years of many cancer registries, including that in Wales. Therefore there will be improvements since their publication, but the data remains fairly recent, and can still show survival relative to other countries, and trends over time.

CONCORD-3 only reports five-year and not one-year survival. The International Cancer Benchmarking Partnership (ICBP) Surv Mark2 study includes data on Wales from our registry, and will report on one-year and five-year survival for 1995-1999 to 2010-2014 when it is published soon in the *Lancet Oncology* scientific journal.

We selected 32 of the 71 CONCORD-3 countries based on high-income countries participating in ICBP Phase One studies and/or countries in the EUROCARE studies. We also included Romania and the Russian Federation from the United Nations European region. We considered Wales and the other UK countries' CONCORD-3 survival results separately, and not the UK as a whole. The countries are:

- Wales, Northern Ireland, Scotland, England, Ireland
- Denmark, Finland, Iceland, Norway, Sweden
- Austria, Belgium, France, Germany, Switzerland, Netherlands
- Croatia, Italy, Malta, Portugal, Slovenia, Spain, Bulgaria
- Czech Republic, Estonia, Lithuania, Poland, Slovakia (Latvia not included due to data problems)
- Australia, Canada
- Romania, Russian Federation

We considered 12 of the 18 cancer types in CONCORD-3 (see figures 1-12 in accompanying slide set). The slides also show trends in survival over time for each country and cancer type. The following summarises Wales' latest five-year net survival (2010-2014) for these cancers against the other countries. Wales ranked in the lower half of the included countries for all these cancer types, except for cancer of the oesophagus.

Prostate cancer

Australia had the highest survival and Bulgaria the lowest, overall. Wales' survival was 22nd out of the 32 countries considered.

This study showed that of the UK countries, England had the highest survival, Scotland the lowest, with Wales coming third of the four. However, only England was statistically significantly different to Wales.

Breast cancer

Australia had the highest survival, with the Russian Federation the lowest. Of the countries we considered, Wales survival was 22nd out of the 32 countries we considered.

Compared to other UK countries, Wales had the lowest breast cancer survival. England had the highest. England and Scotland's survival was statistically significantly higher than Wales'.

Lung cancer

Of our selected countries, Canada had the best survival. Bulgaria had the lowest. Wales ranked 26 out of the 32 countries.

Wales had the lowest survival of all the UK countries, but with no statistically significant difference between it and Scotland and Northern Ireland. England had the highest survival of the UK countries - statistically significantly higher than Wales, although the difference was small.

Colon cancer

Australia had the best survival, and the Russian Federation had the lowest. Wales ranked 26th out of the 32 countries.

The Wales survival rate was the lowest of the three other UK countries, all of which had statistically significantly higher survival. Northern Ireland's survival was the highest of the UK countries.

Rectal cancer

The highest survival was in Australia, and lowest in the Russian Federation. Wales ranked 22nd out of the 32 countries we considered.

All the other UK countries had higher survival than Wales. Scotland had the highest. The differences between Wales and both Scotland and England were statistically significant.

Melanoma of the skin cancer

Of the 32 selected countries we compared, Scotland had the second highest survival, close to the highest survival, that was in Switzerland. Bulgaria had the lowest survival, overall. Wales was ranked 19th.

Wales had the lowest melanoma survival of the UK countries. All the other UK countries were statistically significantly higher than Wales. Scotland had the highest survival of these countries.

Cancer of the ovary

Of the selected countries, Sweden had the highest survival and Malta the lowest, although Malta's was based on very small numbers. Wales ranked 29th.

Ovarian cancer survival in this study was similar for Wales, Scotland and Northern Ireland, the latter have the lowest survival but one of all the countries. The survival in England was higher than the other UK countries, and this was statistically significant against all three.

Cancer of the pancreas

Wales ranked 26th of 29 countries (three countries of the total of 32 selected could not submit data for pancreatic cancer). Belgium had the highest survival, and the Russian Federation the lowest.

Wales was third lowest of the UK countries. Scotland was lowest by a small margin, and England had the highest survival of the UK. But there was no statistically significant difference between them.

Cancer of the oesophagus

Switzerland had the highest survival of 29 countries (three countries of the total of 32 elected could not submit data for oesophageal cancer), although this was not statistically significantly higher than Northern Ireland. Estonia had the lowest survival, overall. Wales ranked 15th out of 29 countries.

Scotland had the lowest survival of the UK, with no statistically significant difference with Wales. England was statistically significantly higher than Scotland, but not Wales. Northern Ireland was statistically significantly higher than all the UK countries.

Stomach cancer

Belgium had the highest survival of the selected countries - more than double that in Wales. Bulgaria had the lowest. Wales's survival ranked 31 out of 32, being just higher than Bulgaria's, although not statistically significantly different to it.

Within the UK, Wales survival was the lowest, similar to that in Scotland. Northern Ireland had the highest survival of the UK countries, although this was not statistically significantly higher than Wales. England's survival was statistically significantly higher than Wales.

Cervical cancer

The highest survival of the selected countries was in Norway, and the lowest was in Bulgaria. Wales ranked 19th out of 31 countries (one country could not submit data).

Although Northern Ireland had the highest survival in the UK, and Scotland the lowest, there were no statistically significant differences between the UK countries. The survival in Wales and England were similar.

Primary liver cancer

Wales ranked 18th out of 31 countries (one of the 32 could not submit data). Belgium had the highest survival and Estonia the lowest.

Of the UK countries, Wales' survival was second highest, with England and Northern Ireland not being statistically significantly different to Wales. Scotland was statistically significantly higher than all the other UK countries.

Many factors combine to explain the differences in cancer survival

No single factor explains our observed differences in population-based cancer survival between populations within or outside Wales. Some of the factors can include:

1. Different mixes of types and grades of cancers
2. Population Age (mostly accounted for in our comparisons through statistical age-standardisation and net survival methods)
3. Distribution of cancer stage at diagnosis
4. The patterns of routes in to the health service at time of diagnosis e.g. emergency, routine GP referral, urgent suspected cancer referral, etc.
5. Variation in access to timely effective treatments
6. Presence of co-morbidities and optimization of their treatment
7. Other factors after diagnosis – smoking, obesity, physical inactivity, alcohol, etc.

In turn, many of these factors can be influenced by one or more of:

- patient-related factors
- health-service factors
- inequalities and wider social and societal factors

For example, stage at diagnosis can be influenced by the cancer type, the patient's health seeking behaviour, access to GP services, referral practices, organization and distance of hospital services, availability of diagnostic services, etc., and in turn, societal factors determine many or most of these factors.

Health seeking behaviour, and many health service factors can also influence uptake and effectiveness of screening services.

Many researchers are exploring what affects these factors and how they can be improved to increase survival. The International Cancer Benchmarking Partnership (ICBP) supports such a programme of research, and the Welsh Cancer Intelligence and Surveillance Unit plays a major part in the work.

The Public Health Wales Observatory explored the observed international slow-down and decreases in life-expectancy in Mortality in Wales 2012-2016, published in 2018. Some of its key findings are:

- The [overall] mortality rate in Wales has been declining since the Second World War; however since around 2011, this decline has faltered and rates have shown little change.

- A plateau in life expectancy in Wales is also visible since around 2011.

- This phenomenon has been repeated across much of Western Europe, but in Wales the effect occurred earlier and only Scotland now has lower life expectancy.

- The faltering of the decline in the overall mortality rate has been driven by increased deaths in the 85-89 and 90+ age groups. However, mortality rates among 55-84 year olds are also no longer in decline.

The UK and USA saw the greatest reductions in life expectancy gains for both males and females. Within the UK, Wales, along with Scotland, is particularly affected. The phenomenon has affected older and younger people. The most recent life-expectancy figures show a fall in Wales.

Wider factors contributing to the international slow-down in life expectancy since around 2010/11 are likely multi-factorial, may include the impact of wider societal measures, and have occurred due to increased mortality across a range of diseases. They are under more detailed investigation, particularly across the UK. A driver of the variation between geographical areas may be differences in material deprivation; within Wales there is a widening life expectancy gap between those in the least and most deprived areas.

We examined the issue in relation to cancer in Wales in our latest cancer mortality publication. For men, in terms of major disease groups, cancer had the second largest drop, after circulatory diseases, in its contribution to improved life expectancy between 2005-07 to 2010-2012 and 2010-12 to 2015-17. For women, cancer's influence on improved life expectancy had still decreased, but not as much as circulatory diseases, respiratory causes, and dementia and Alzheimer's.

Initiatives that aim to tackle factors 3 to 6, above, in order to improve population-based cancer survival are ongoing in Wales, in general, but particularly for lung and colorectal (bowel) cancers. Patient-related initiatives have been in areas such as screening uptake in the absence of symptoms, and increasing awareness of certain symptoms to seek GP services if they occur, for example. Health-service initiatives have included, for example, piloting the

model of referral and diagnostic services; endoscopy and radiology services; a new colorectal cancer screening test; and the development of a single cancer pathway.

As the initiatives gain momentum, further gains in short-term, and likely 5-year survival, may become more evident in our future cancer survival official statistics. However, despite disease incidence also affecting population mortality, it is likely that the wider factors we described - that are currently affecting mortality and life expectancy - may be limiting potential gains in cancer survival in Wales made by addressing more specific health care and patient-related factors.

The key policy on cancer in Wales is set out in the Cancer Delivery Plan 2016-2020

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