1. Overview

Cancer affects most of the Northern Ireland (NI) population at some time either as patients, relatives, friends or carers. It is the largest cause of death, accounting for almost a third of deaths in males (2,326, 30% registered in 2018) and over a quarter (2,122, 26% registered in 2018) in females.

Cancer increases with age, with the ageing of the population thus the biggest factor in annual increases in the number of cases presenting. In addition, many of the older folk have other health conditions and comorbidities, which have to be taken into account when planning treatments.

The number of people living after a diagnosis of cancer within the previous ten years is projected to increase by approximately 40% from the current level of almost 45,000, with the largest increases projected in older persons. Many of these patients will be cured, but others will be living with progression of their disease and/or side effects of their cancer or its treatment.

One fifth of patients present with late stage disease where treatment options are limited. Prevention and early diagnosis are thus essential to improving survival. While there have been year on year improvements in survival, the Covid-19 pandemic is likely to impact on the recent year on year improvements in survival.

2. Deaths

Cancer is largest cause of death in Northern Ireland (figure 1), with the number of deaths increasing (figure 2) driven primarily by the increasing size and ageing of the population.

Cancer in numbers: provided by N. Ireland Cancer Registry November 2020

Figure 1: Deaths in Northern Ireland by cause: Registered in 2018

External Causes
954 (6%)

Alzheimers &
Other
Dementias
2,048 (13%)

Cancer (C00-C97)
4,448 (28%)

Respiratory Diseases
(J00-J99)
2,201 (14%)

Other Causes
2,644 (16%)

Circulatory
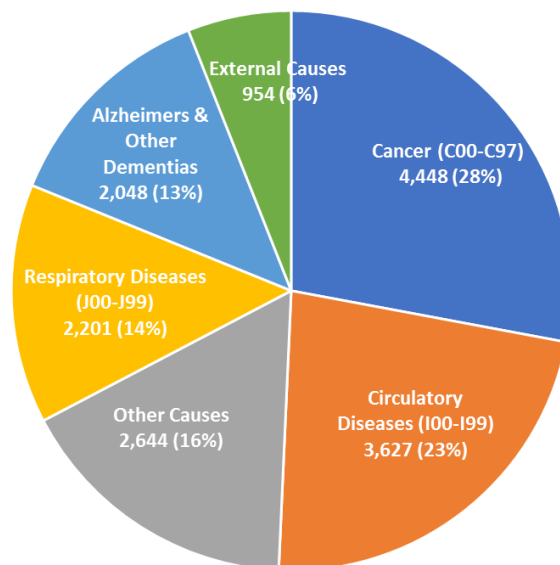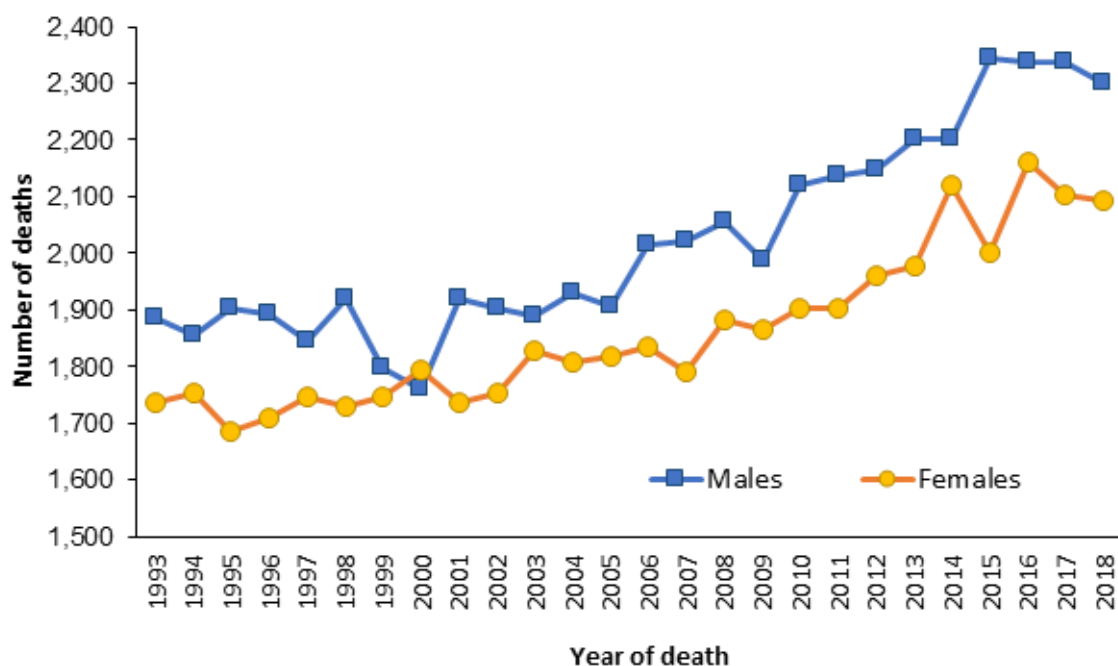Diseases (I00-I99)
3,627 (23%)

Figure 2: Trend in the number of deaths due to cancer (ex. NMSC) by sex: 1993-2018

Age-standardised mortality rates (ASMR) take into consideration the changes over time due to the population ageing and growing in size, and are therefore a more accurate measure of the changes in mortality over time. These rates show a falloff among men and women, probably related to improvements in cancer survival. Greater reductions in mortality rates among men than women may be linked to greater reductions over time in male tobacco use. (Figure 3)

Cancer in numbers: provided by N. Ireland Cancer Registry November 2020

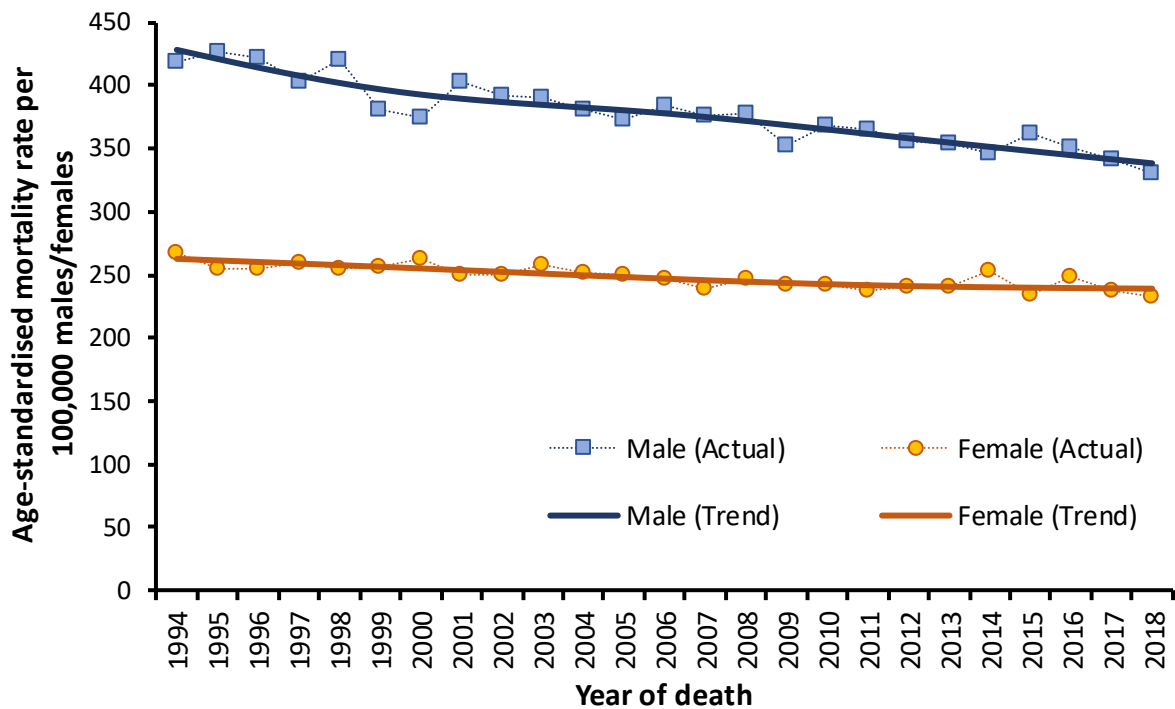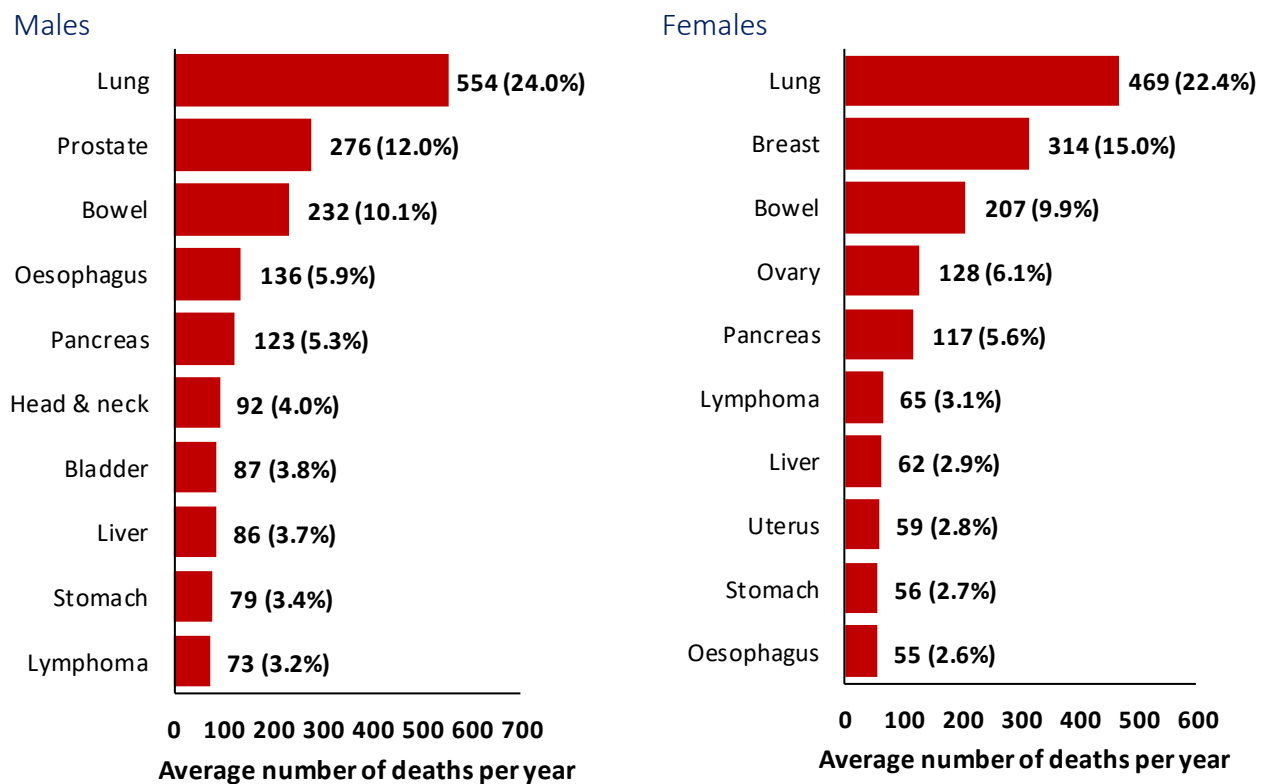Figure 3: Trend in age-standardised mortality rates by sex: All cancers (ex NMSC), 1993-2018

Figure 4: Average number of deaths per year by sex and cancer type: All cancers (ex. NMSC), 2014-2018

Males

Cancer type	Average number of deaths per year
Lung	554 (24.0%)
Prostate	276 (12.0%)
Bowel	232 (10.1%)
Oesophagus	136 (5.9%)
Pancreas	123 (5.3%)
Head & neck	92 (4.0%)
Bladder	87 (3.8%)
Liver	86 (3.7%)
Stomach	79 (3.4%)
Lymphoma	73 (3.2%)

Average number of deaths per year

Females

Cancer type	Average number of deaths per year
Lung	469 (22.4%)
Breast	314 (15.0%)
Bowel	207 (9.9%)
Ovary	128 (6.1%)
Pancreas	117 (5.6%)
Lymphoma	65 (3.1%)
Liver	62 (2.9%)
Uterus	59 (2.8%)
Stomach	56 (2.7%)
Oesophagus	55 (2.6%)

Average number of deaths per year

Cancer in numbers: provided by N. Ireland Cancer Registry November 2020
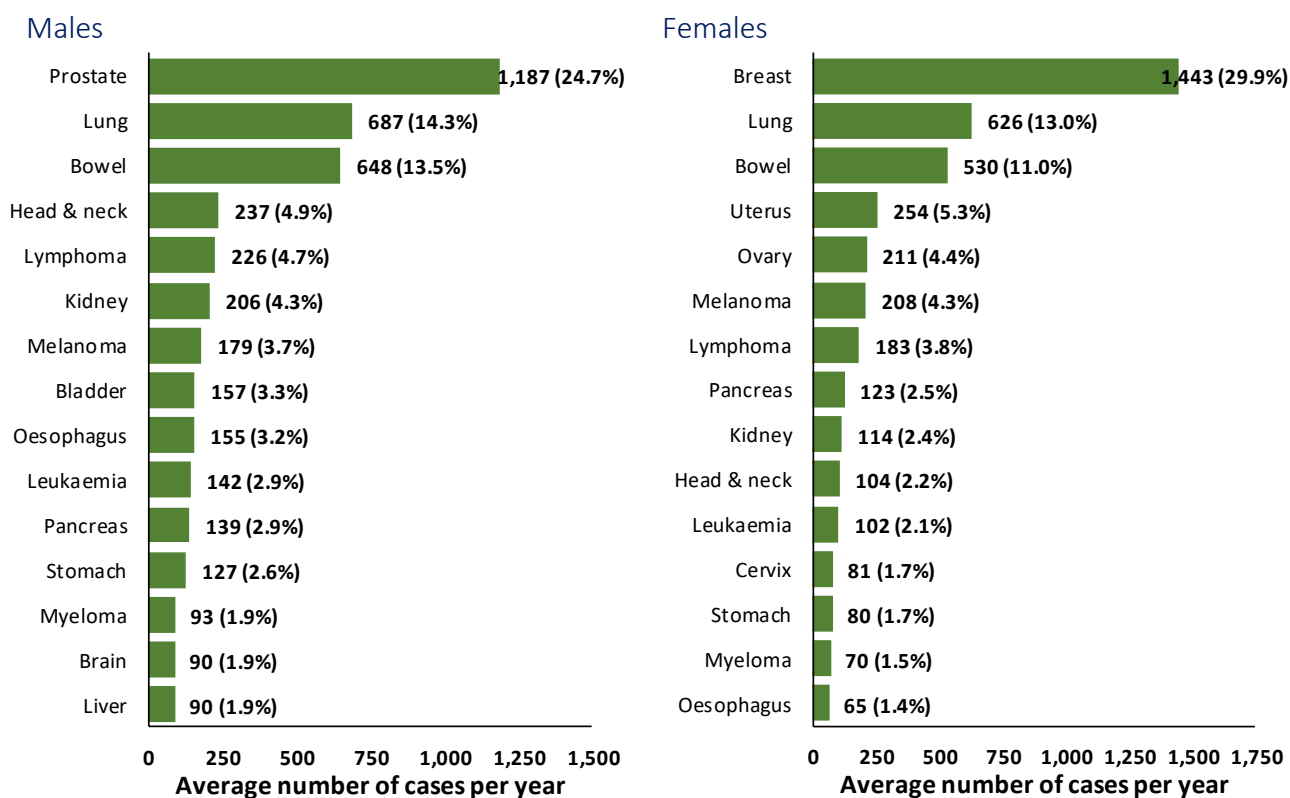
The most common causes of cancer deaths (ex. NMSC) among men during 2014-2018, were lung cancer (24.0%), prostate cancer (12.0%) and bowel cancer (10.1%), while the most common cause of cancer deaths (ex. NMSC) among women were lung cancer (22.4%), breast cancer (15.0%) and bowel cancer (9.9%). (Figure 4)

Deaths however reflect only part of the story as many cancers, especially non melanoma skin cancers, are cured so we need to examine the *numbers of cancer cases diagnosed.*

3. Cancer incidence

In 2018, there were 14,039 (7,351 males, 6,688 females) cancer cases diagnosed in Northern Ireland (NI). Over a quarter (4,142 cases in 2018, 29.5%) of these were a skin cancer (non-melanoma skin cancer - NMSC) which is easily treated and rarely causes death and are thus counted separately from more serious cancers. Excluding NMSC, each year on average over 9,600 people (4,810 males, 4,819 females) were diagnosed with a cancer during 2014-2018.

Figure 5: Average number of cancers diagnosed per year by sex and cancer type: All cancers (ex NMSC), 2014-2018

Males

Cancer type	Value
Prostate	1,187 (24.7%)
Lung	687 (14.3%)
Bowel	648 (13.5%)
Head & neck	237 (4.9%)
Lymphoma	226 (4.7%)
Kidney	206 (4.3%)
Melanoma	179 (3.7%)
Bladder	157 (3.3%)
Oesophagus	155 (3.2%)
Leukaemia	142 (2.9%)
Pancreas	139 (2.9%)
Stomach	127 (2.6%)
Myeloma	93 (1.9%)
Brain	90 (1.9%)
Liver	90 (1.9%)

Average number of cases per year

Females

Cancer type	Value
Breast	1,443 (29.9%)
Lung	626 (13.0%)
Bowel	530 (11.0%)
Uterus	254 (5.3%)
Ovary	211 (4.4%)
Melanoma	208 (4.3%)
Lymphoma	183 (3.8%)
Pancreas	123 (2.5%)
Kidney	114 (2.4%)
Head & neck	104 (2.2%)
Leukaemia	102 (2.1%)
Cervix	81 (1.7%)
Stomach	80 (1.7%)
Myeloma	70 (1.5%)
Oesophagus	65 (1.4%)

Average number of cases per year

The most common cancer in men during 2014-2018 was prostate cancer (1,187 cases per year, 25%), and in women was breast cancer (1,443 cases per year, 30%). Lung and colorectal cancers were also common in both genders. (Figure 5).

3.1: Age and cancer incidence

Cancer risk increases with age, with two thirds (67%) of cancer cases in men and over half (58%) in women diagnosed when aged over 65. This compares to 11% of cancer cases (ex. NMSC) diagnosed in those under 50 years. (Figure 6)

Figure 6: Age specific incidence rates and average number of cases per year by sex and age at diagnosis: All cancers (ex. NMSC), diagnosed 2014-2018
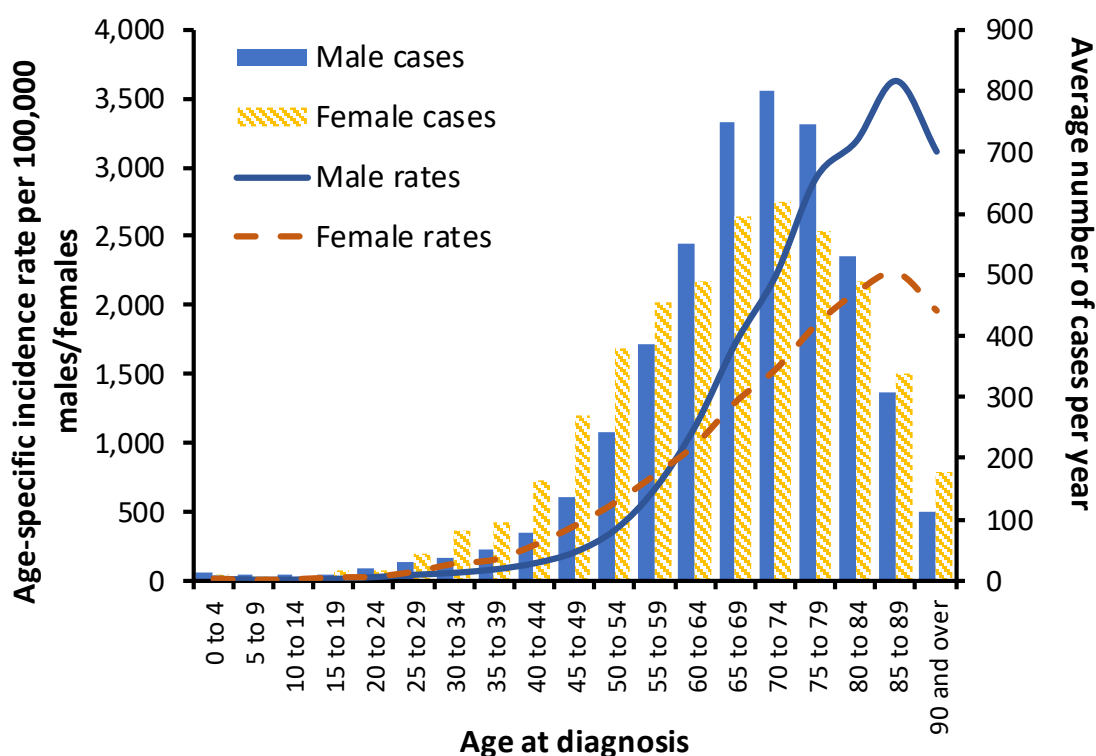
The average age of diagnosis is dependent on the cancer type, for example half of testicular cancers were diagnosed among men aged under 35 and half of cervical cancers were among women aged under 43. On average 52 children (aged 0-14) were diagnosed with cancer each year between 2014 and 2018.

Cancer in numbers: provided by N. Ireland Cancer Registry November 2020

The median age at diagnosis for most cancer types during the period 2014-2018 was 65 years or more. Exceptions included testicular cancer and brain cancer in males; and cervical cancer, melanoma, brain cancer and breast cancer in females. (Figure 7)

Figure 7: Median age at diagnosis by sex and cancer type: All cancers (ex. NMSC), diagnosed 2014-2018

Males

Females
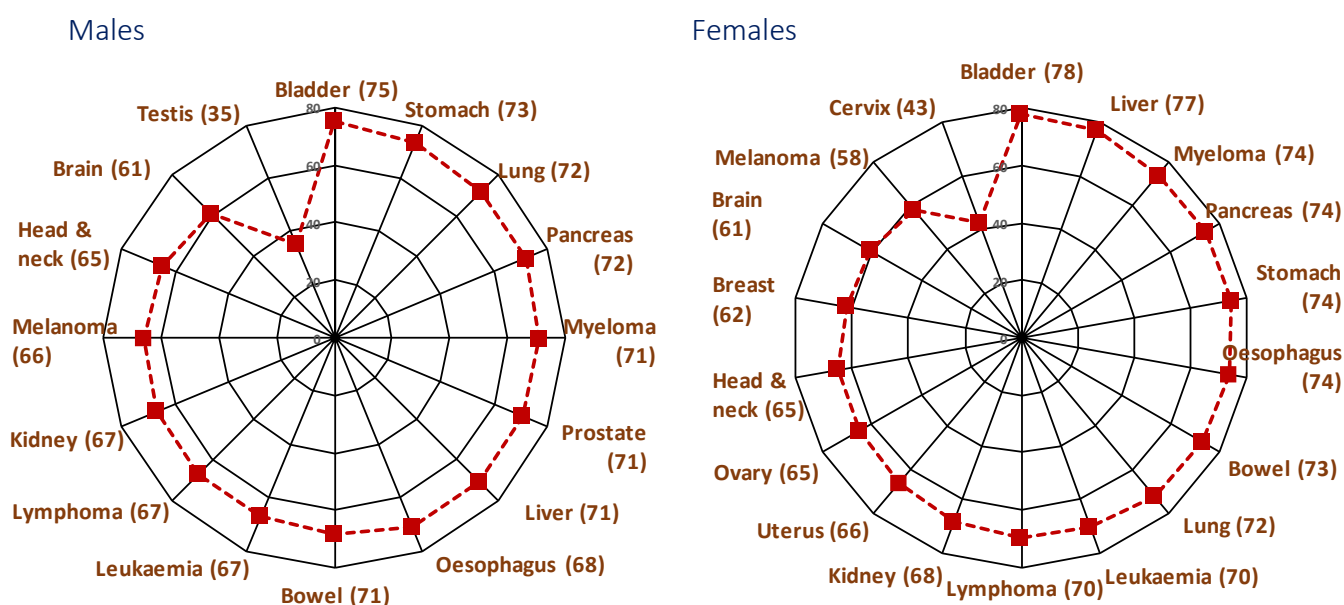
3.2: Incidence trends and projections

Data on historical trends and estimates of future cancer incidence are essential if pressures on cancer services are to be identified early allowing planning for workforce and adequate resourcing.

Trends: 1993-2018

Between 1993-1997 and 2013-2018 the average number of cases of cancer (ex. NMSC) increased by 53.7% from 6,264 cases per year to 9,629 cases per year (Male increase: 56.2%, Female increase: 51.3%).

The majority of this increase is a result of the ageing of the population as the corresponding age-standardised incidence rates (ASIR) have only increased by 12.0% between 1993-1997 and 2013-2018. However, the rate of change of ASIRs over time has not been constant. Among males ASIRs decreased between 1993 and 1999 by 1.6% per year, increased

between 1999 and 2009 by 1.3% per year and decreased again between 2009 and 2018 by 0.7% per year. Among women there was no significant change in ASIRs between 1993 and 2001, while between 2001 and 2018 ASIRs increased by 1.0% per year. (Figure 8)

Figure 8: Trend in age-standardised incidence rates by sex: All cancers (ex NMSC), diagnosed 1993-2018
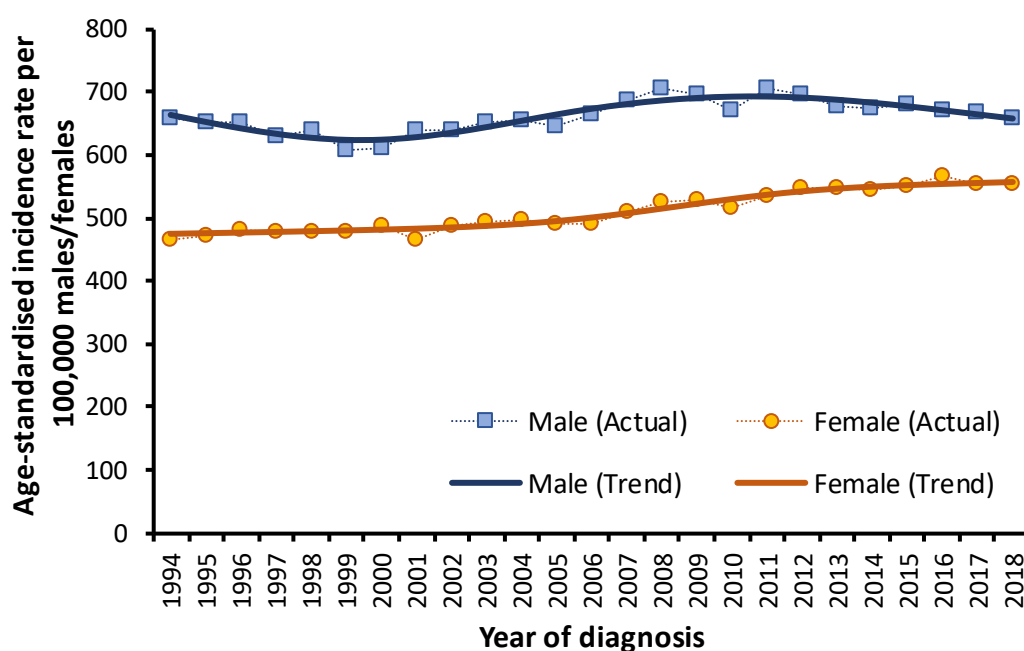
Different cancer types also demonstrated considerably different trends over time. At the end of 2018 significant increases in male ASIRs were apparent for melanoma and head and neck, oesophageal, pancreatic and kidney cancers, while there were significant decreases for colon, prostate, stomach and bladder cancers. Among women there were significant ASIR increases for melanoma, leukaemia, and breast, lung, head and neck, liver and kidney cancers, while significant decreases occurred for rectal, stomach, cervical, ovarian and bladder cancers.

Projections: 2013-2017 average to 2040

The **number** of cancer cases diagnosed is projected to double by 2040 (45% for males and 58% for females) compared to the average number of cases in 2013-2017. This projected rise to 6,788 male and 7,450 female cases is due primarily to estimated increases in the number of people aged 60 years and over living in Northern Ireland. (Figure 9)

Figure 9: Projected numbers of cancers (ex. NMSC) by gender: 2018-2043
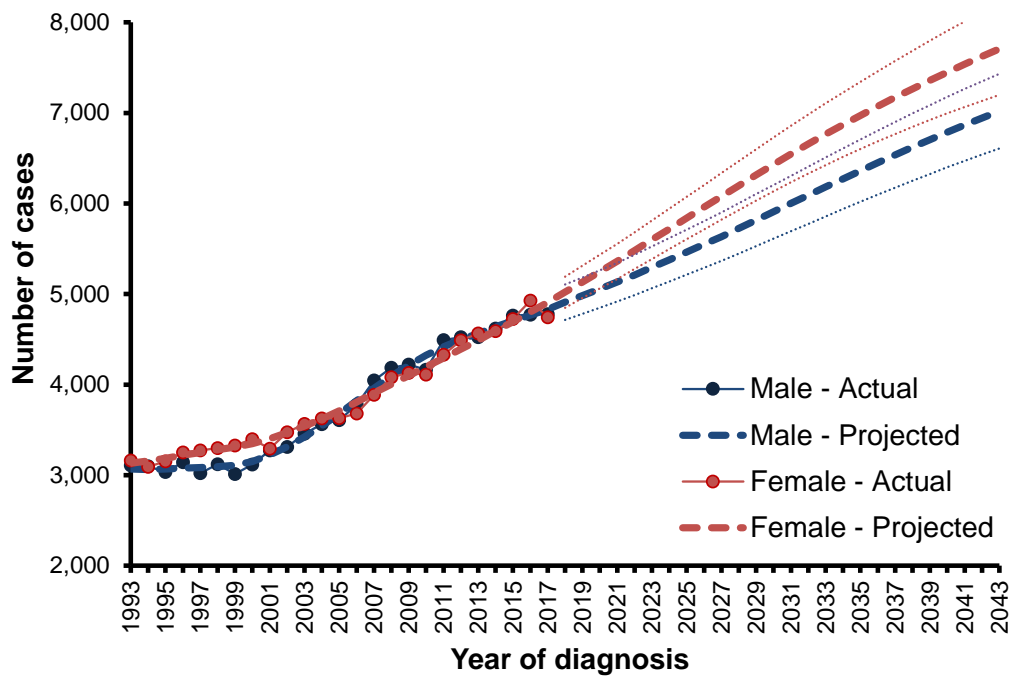
Age standardisation takes account of the projected increases in the size of the elderly population. Rates for all cancers (ex NMSC) are projected to fall 9% by 2040 among males but rise 12% among females. (Figure 10)
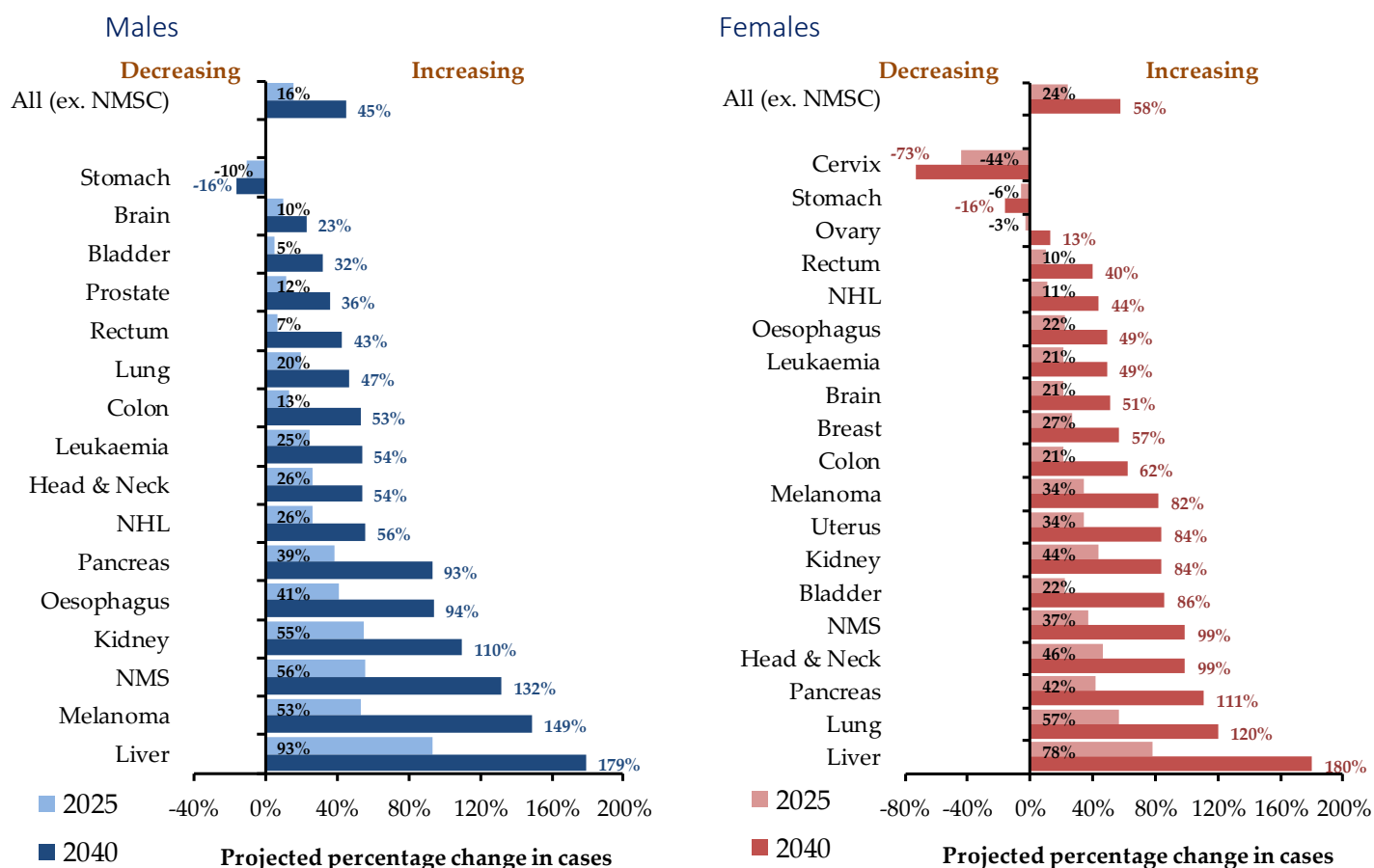
Figure 10: Projected age-standardised incidence rates for cancer (ex. NMSC) by gender: 2018-2043
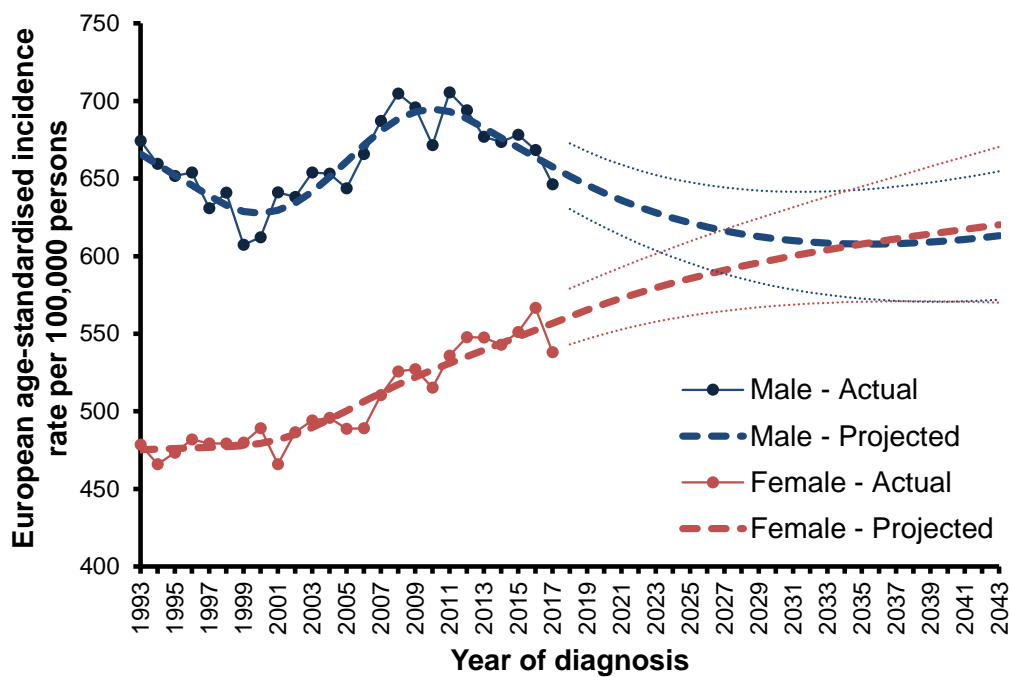
Cancer in numbers: provided by N. Ireland Cancer Registry November 2020

The rise in the number of cases is projected for all cancer types except for cervical and stomach cancer, with the number of cases diagnosed each year projected to more than double among males for melanoma, liver, and kidney cancers, and among females for liver, pancreatic and lung cancers. Cancer control strategies to reduce risk factors, especially tobacco use, obesity, alcohol consumption and UV exposure, have the potential to alter these projections

Figure 11: Projected change in cancer case numbers by sex and cancer type

By 2040, compared to the 2013-2017 average, male ASIRs are projected to decrease by more than 20% for stomach and bladder cancers and increase by more than 20% for melanoma, oesophageal, liver and kidney cancers. Also compared to the 2013-2017 average, female ASIRs are projected to decrease by more than 20% by 2040 for stomach and cervical cancers and increase by more than 20% for melanoma, head & neck, uterine, liver, kidney, pancreatic, lung and breast cancer.

Figure 12: Projected change in age-standardised incidence rates by sex and cancer type
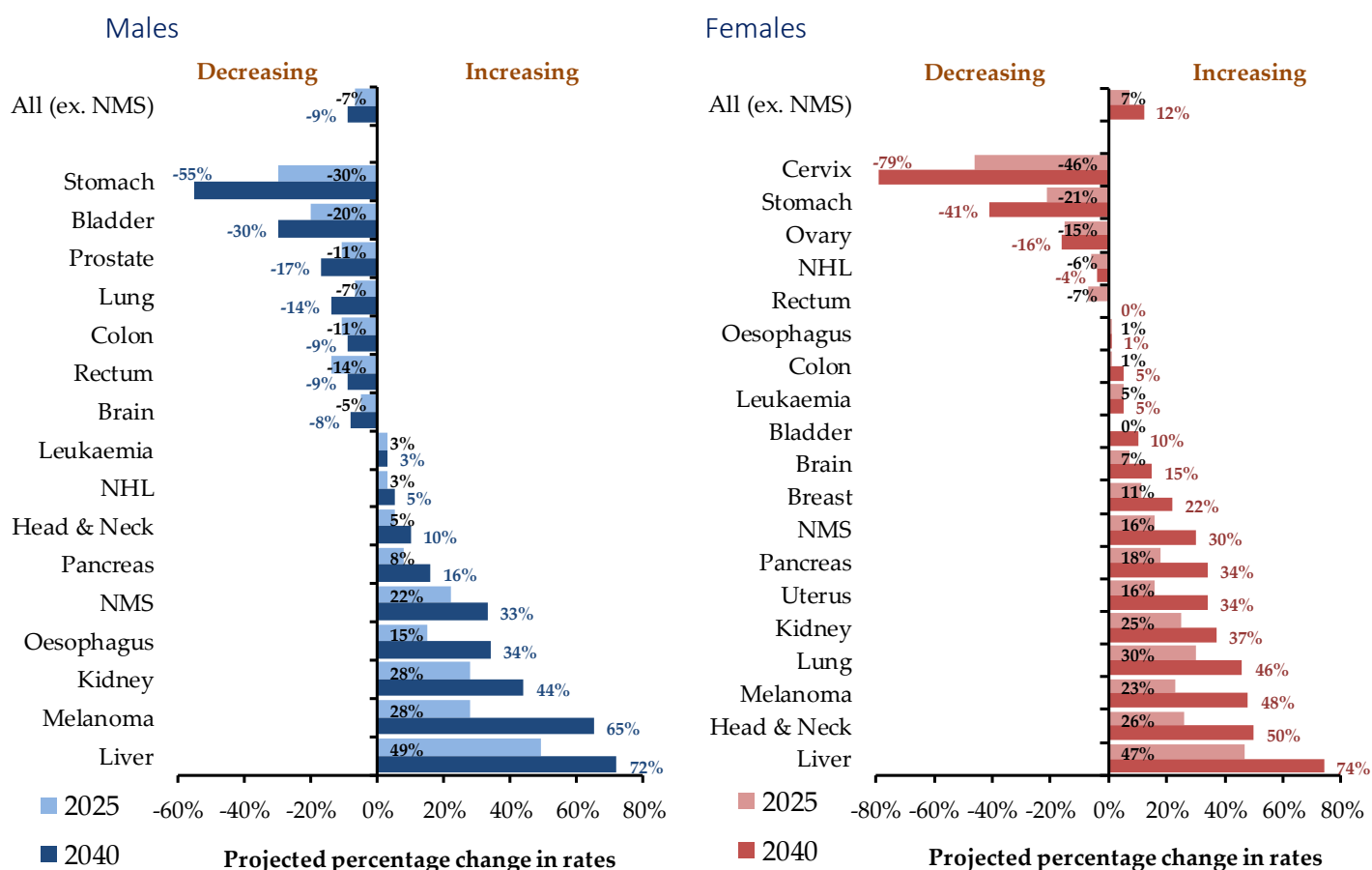

3.3: Socio-economic deprivation status and cancer incidence

As well as age, cancer rates are also greatly affected by socio-economic status. Cancer incidence rates in the most socio-economically deprived areas were 15% higher than the NI average during 2014-2018. This compares with the most affluent areas which had incidence rates that were 6% lower than the NI average. (Figure 13)

The relationship between cancer and socio-economic deprivation varies by cancer site. During 2014-2018, cancer types which were more common in deprived areas included lung, head and neck, cervical and stomach cancers. Cancers more common in more affluent populations were prostate cancers and malignant melanoma. (Table 1)

Figure 13: Standardised incidence ratios (SIR) compared to NI average (SIR=100) by sex and deprivation quintile: All cancers (ex NMSC), diagnosed 2014-2018
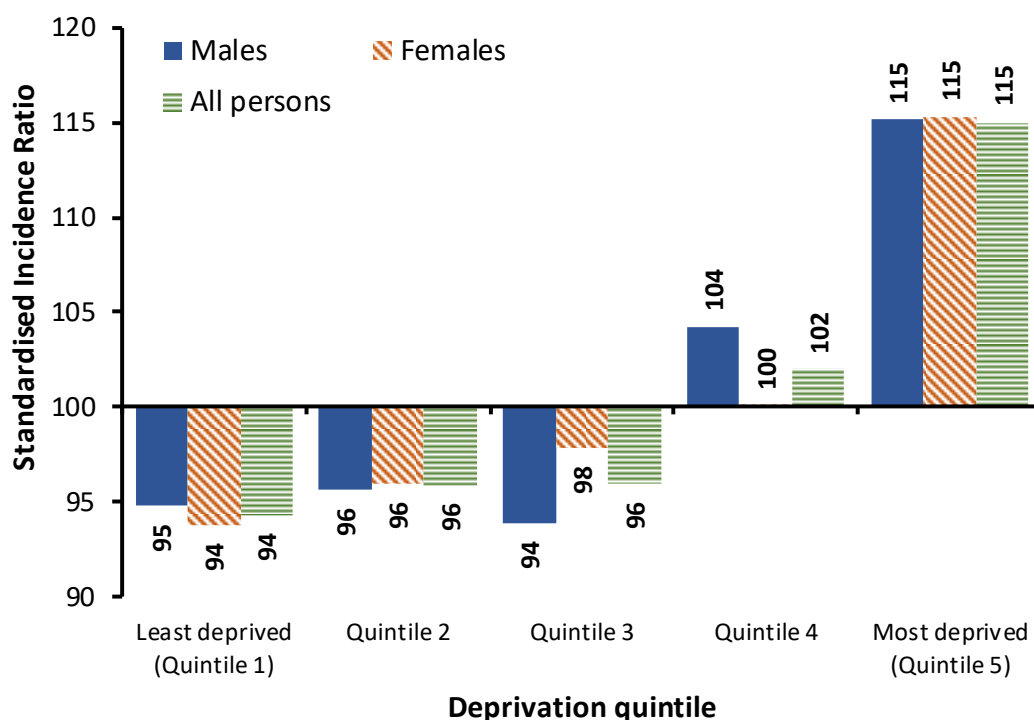
Standardised incidence ratios compare incidence rates in each deprivation quintile with the Northern Ireland incidence rate. A value above 100 means that incidence rates in that deprivation quintile are greater than the Northern Ireland average. This measure takes account of population size and age structure.

Table 1: Cancer rates by deprivation group NI

Incidence rates higher in the <u>most deprived</u> areas compared to the NI average	Incidence rates higher in the <u>least deprived</u> areas compared to the NI average	Incidence rates <u>not</u> higher than the NI average in the most or least deprived areas
Head and neck cancer ↑55% (male 67%)	Malignant melanoma ↑23%	Pancreatic cancer
Oesophageal cancer ↑26%	Prostate cancer ↑6%	Breast cancer
Stomach cancer ↑37% (male 52%)	Brain cancer (inc CNS) (male only) ↑22%	Uterine cancer
Colorectal cancer (male only) ↑15%		Ovarian cancer
Liver cancer ↑37%		Testicular cancer
Lung cancer ↑70%		Bladder cancer
Cervical cancer ↑66%		Lymphoma
Kidney cancer (female only) ↑24%		Myeloma
Unknown primary cancer (female only)↑60%		Leukaemia

CNS: central nervous system

The biggest socio-economic gradient in cancer diagnosis was for lung cancer, where rates were 70% higher in deprived areas compared to the NI average (Figure 14). During the five years from 2014 to 2018 there was an excess of 956 lung cancer cases in the most socio-economically deprived areas compared to the least deprived quintile (1,838 vs 882), equivalent to 191 cases per year. (Table 2)

Figure 14: Standardised incidence ratios (SIR) compared to NI average (SIR=100) by sex and deprivation quintile: Lung cancer, diagnosed 2014-2018
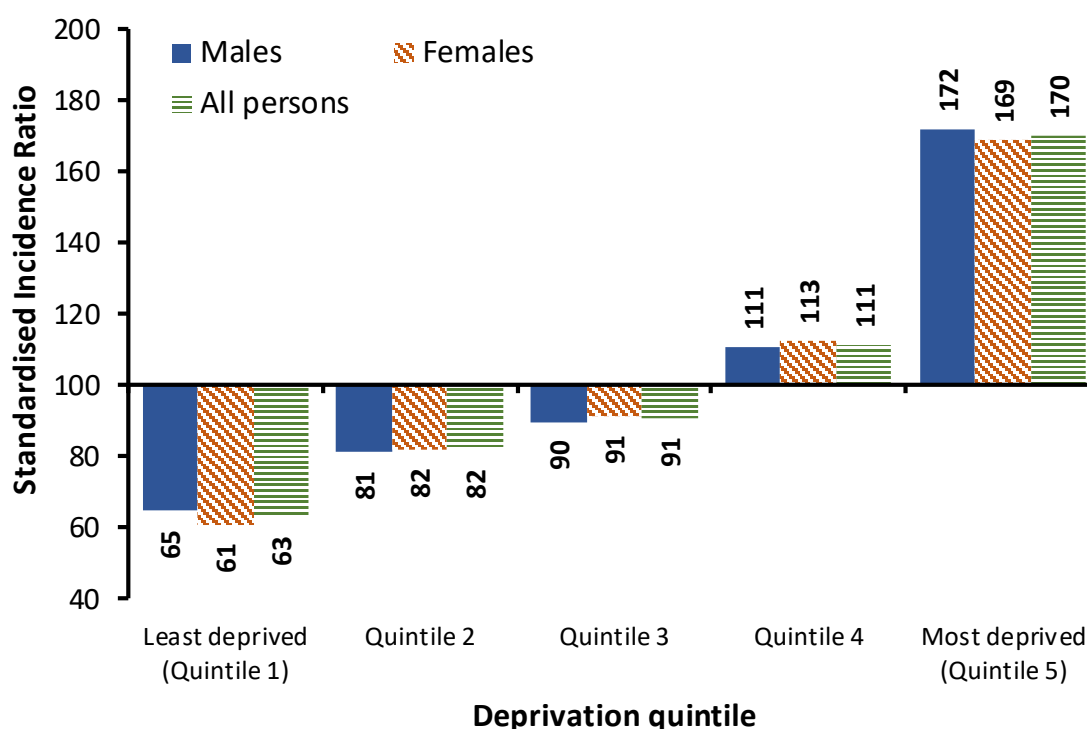
Standardised incidence ratios compare incidence rates in each deprivation quintile with the Northern Ireland incidence rate. A value above 100 means that incidence rates in that deprivation quintile are greater than the Northern Ireland average. This measure takes account of population size and age structure.

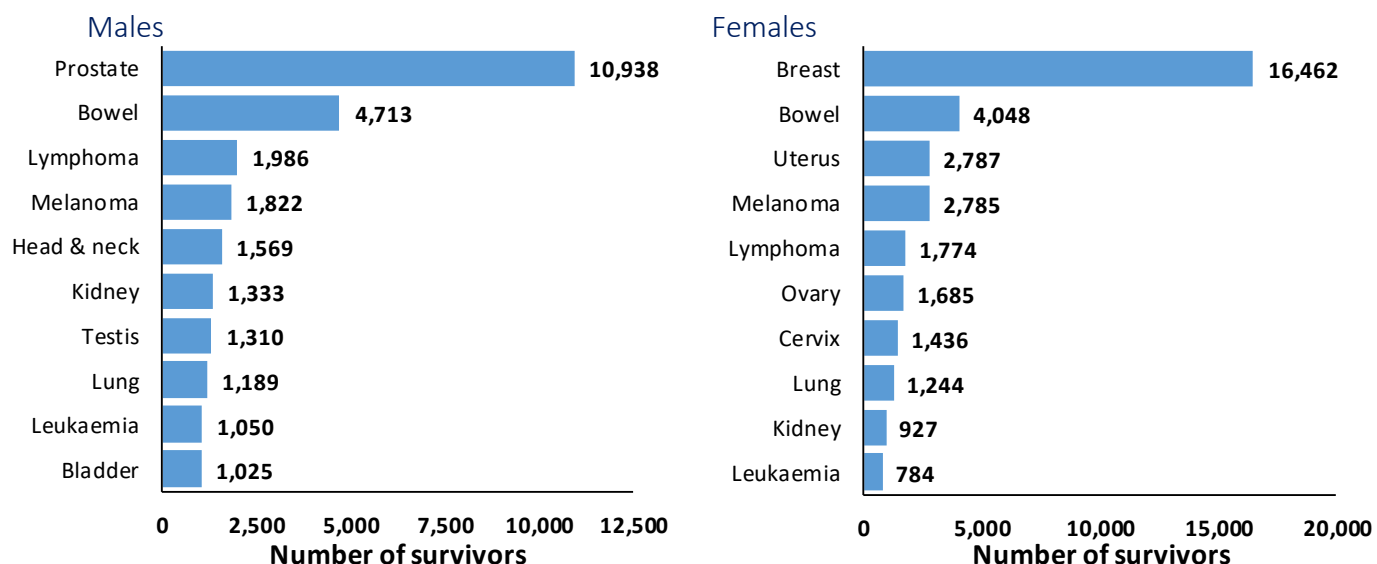Table 2: Number of cases of lung cancer per year by deprivation quintile: Diagnosed 2014-2018

Year	Least deprived (Quintile 1)	Quintile 2	Quintile 3	Quintile 4	Most deprived (Quintile 5)
2014	169	220	245	268	357
2015	177	210	259	284	352
2016	193	234	253	344	363
2017	174	229	247	315	385
2018	169	243	244	260	381
Total	**882**	**1127**	**1248**	**1471**	**1,838**
Average	**176**	**225**	**250**	**294**	**368**

4. Cancer prevalence

Cancer prevalence is defined as the number of living people who have ever been diagnosed with cancer. At the end of 2018, there were an estimated 65,722 people (Males: 28,937; Females: 36,785) living with cancer (ex NMSC) who had been diagnosed with the disease during 1994-2018. Of these, 44% were male, almost half (48%) were aged 70 and over, and one in 8 (12%) were diagnosed in the previous year with 21,277 males and 24,234 females diagnosed in the last ten years. The most common cancer types among male survivors at the end of 2018 (ex NMSC), were prostate cancer (10,938 survivors) and bowel cancer (4,713 survivors), with breast cancer (16,462 survivors) and bowel cancer (4,048 survivors) the most common cancer types among female survivors. (Figure 15)

Prevalence of lung cancer is low in the population as although it is one of the most commonly diagnosed cancers (figure 5), the mortality rate for lung cancer is high, therefore there are fewer people living with this cancer. Testicular cancer also has a low prevalence as despite having a five-year survival rate of 96%, the annual incidence of this cancer is low (1.3% of male cancers ex. NSMC).

Figure 15: 25-year prevalence* of all cancers (ex. NMSC) up to the end of 2018

Males

Cancer	Number of survivors
Prostate	10,938
Bowel	4,713
Lymphoma	1,986
Melanoma	1,822
Head & neck	1,569
Kidney	1,333
Testis	1,310
Lung	1,189
Leukaemia	1,050
Bladder	1,025

Females

Cancer	Number of survivors
Breast	16,462
Bowel	4,048
Uterus	2,787
Melanoma	2,785
Lymphoma	1,774
Ovary	1,685
Cervix	1,436
Lung	1,244
Kidney	927
Leukaemia	784

25-year prevalence refers to the number of cancer survivors who were alive at the end of 2018, and had been diagnosed with their cancer in the previous 25 years (i.e. 1994-2018).

4.1: Prevalence trends and projections

Trends and projections of prevalence of cancer are linked to increasing incidence, improved survival and reduced deaths from other causes. Knowledge of the current and future number of cancer survivors is important for service planning as active treatments may be continued for several years, specifically long-term chemotherapy or hormone treatment. There is also risk of recurrence and/or side effects of their treatment which may require follow up care and/or further intervention.

Many patients live for periods following cancer recurrence and can have need for particular services e.g. orthopaedic services for bone metastases, Bone metastases from breast and prostate cancers account for more than 80% of all cases of metastatic bone disease and this will become an increasing issue with the projected increases in prevalence for both patient groups. It is estimated that almost a third (29%) of prostate cancers will develop bone mets within 10 years of diagnosis.

Trends: 2003-2018

Between 2003 and 2018, ten-year prevalence (i.e. survivors diagnosed in the previous ten years) of prostate cancer among men almost tripled with increases of more than 100% for oesophageal cancer, kidney cancer, melanoma and leukaemia. Among women ten-year prevalence of lung cancer increased by 157% with an increase of more than 100% for kidney cancer. Large percentage increases were also recorded for liver and pancreatic cancer between 2003 and 2018, however the baseline number of survivors in 2003 was small and ten-year prevalence of these cancers in 2018 remained low.

Projections: 2018-2033

Compared to the 10-year prevalence **rate** at the end of 2018, age standardised prevalence rates of cancer (ex. NMSC) are projected to increase by 9% among men and by 19% among women by 2033. (Figure 16).

However, due to the increases in size of the elderly population, the health service will need to accommodate a greater increase in the **number** of cancer survivors as, compared to 2018, ten-year prevalence of cancer (ex NMSC) is expected to rise by 42% for men and by

43% for women to 30,292 and 34,717 survivors respectively by the end of 2033, with the largest increases in older persons. There will be additional persons who have been diagnosed earlier than 10 years ago. (Figure 17)

Figure 16: Projected 10-year age-standardised prevalence* rate for all cancers (ex. NMSC) by gender
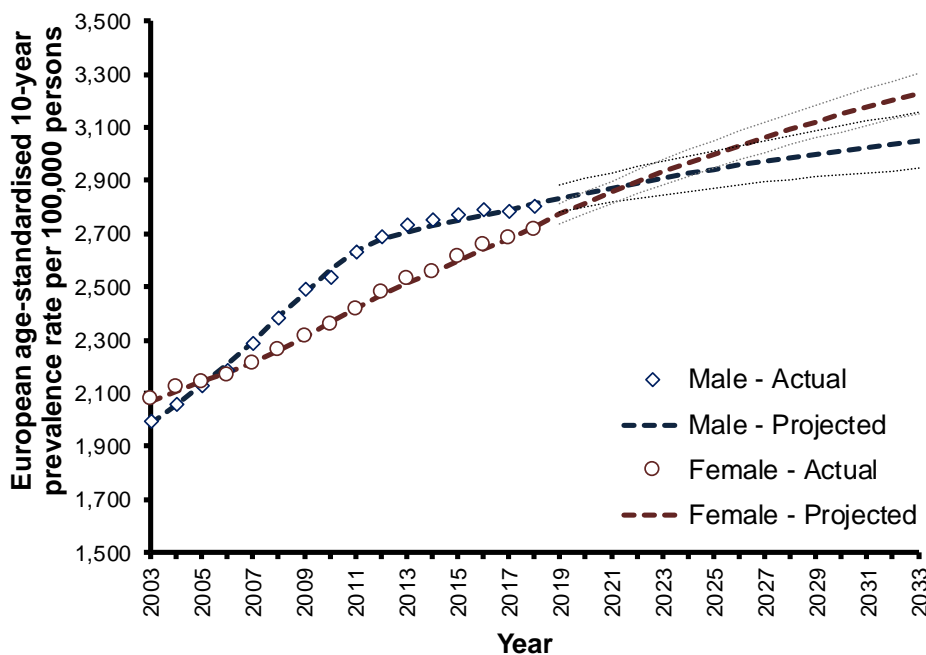
* Number of cancer patients diagnosed in the previous ten years who were alive at the end of the year.
Note: Dotted lines represent prediction intervals.

Figure 17: Projected 10-year prevalence* for all cancers (ex. NMSC) by gender
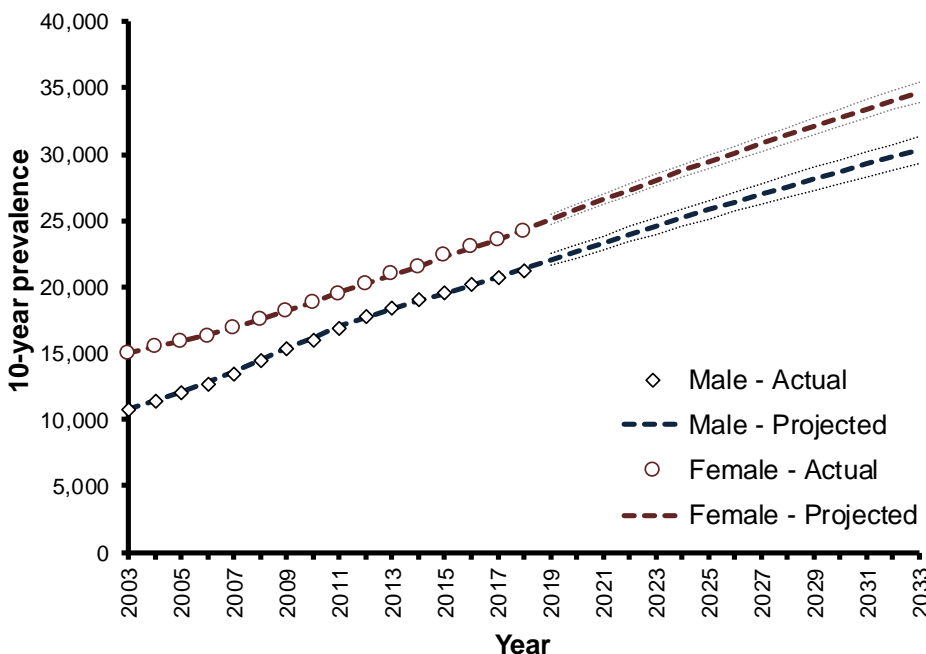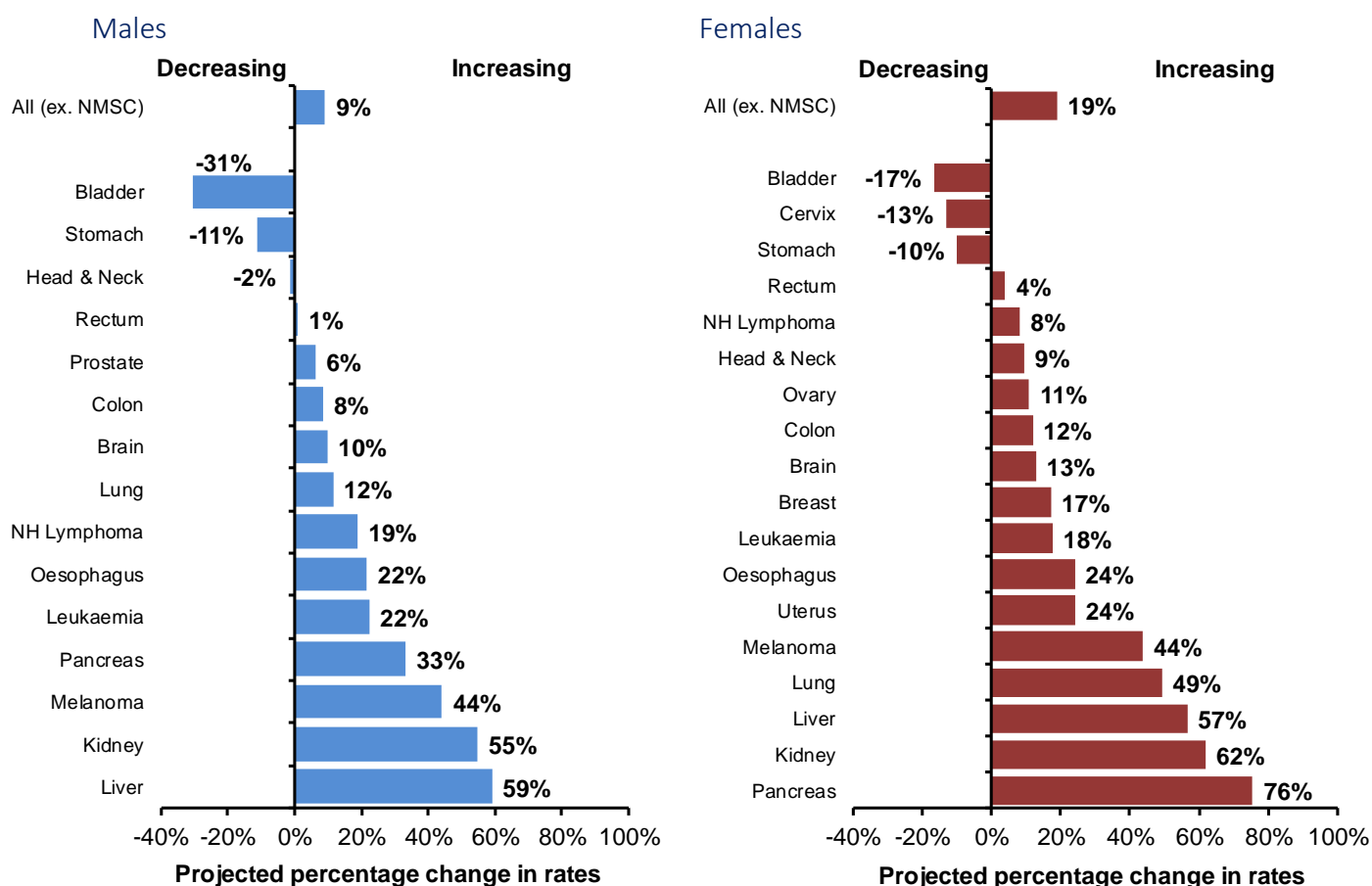

* Number of cancer patients diagnosed in the previous ten years who were alive at the end of the year.
Note: Dotted lines represent prediction intervals.

Cancer in numbers: provided by N. Ireland Cancer Registry November 2020

By 2033, compared to the 2018 rates, male prevalence rates are projected to decrease for bladder, stomach and head & neck cancers, and increase by more than 20% for melanoma, leukaemia, oesophageal, pancreatic, kidney and liver cancers. Also compared to the 2018 rates, female ASPRs are projected to decrease for bladder, cervical and stomach cancers and increase by more than 20% for melanoma, uterine, oesophageal, lung, liver, kidney and pancreatic cancers. (Figure 18)

Figure 18: Projected change by 2033 in age-standardised 10-year prevalence* rate by gender and cancer type compared to 10-year prevalence rate in 2018

* *Number of cancer patients diagnosed in the previous ten years who were alive at the end of the year.*
NMSC: Non-Melanoma Skin Cancer, NH: Non-Hodgkin

By 2033 10-year prevalence among men is projected to increase for all cancer types except bladder cancer, while among women increases are expected for all cancer types except cervical cancer. In particular, 10-year prevalence is expected to more than double among males for liver cancers, with notable increases for melanoma, kidney cancer and pancreatic cancer. Among females 10-year prevalence for pancreatic cancer is expected to more than

double, with the number of survivors expected to almost double for lung, liver and kidney cancer.

5. Cancer survival

Cancer survival is one of the key measures of the effectiveness of cancer services. Survival rates reflect early detection and whether people have received rapid and effective treatment. Reducing cancer waiting times for diagnostic tests and reducing the time to see a specialist are essential to improving survival. Increasing public awareness of symptoms, provision of and uptake of effective cancer screening and immunisations e.g. HPV, improved access to diagnostic techniques using CT scanning, MRI, & PET all help to improve survival rates.

Cancer survival rates in NI, like the rest of the UK, fall short when compared internationally. This has been studied in the International Cancer Benchmarking Partnership the CONCORD studies and EuroCare. (Figure 19)

Figure 19: Age-standardised five-year survival by European country: All cancers (ex NMSC), diagnosed 2000-2007 (source: EuroCare)
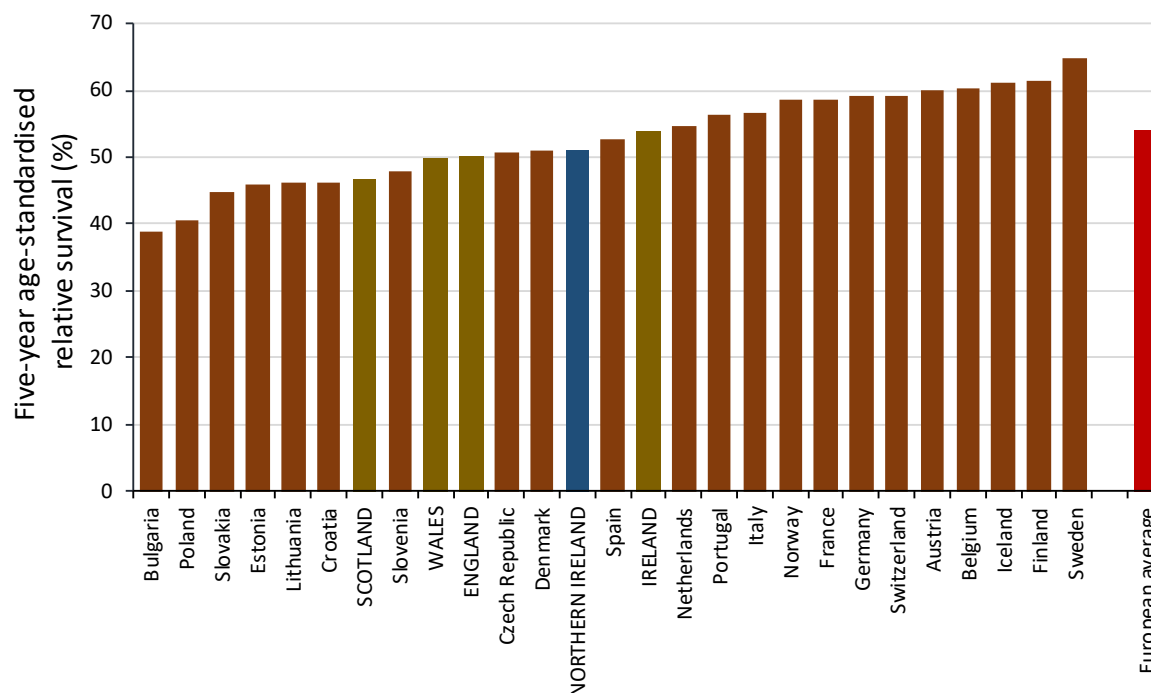
5.1: Age-standardised net survival

The most accurate measure of cancer survival is age-standardised net survival (ASNS) which removes the effect of deaths resulting from causes that are unrelated to cancer. For patients diagnosed in 2009-2013 five-year survival (ASNS) was 72.5% one year and 56.6% five years from a cancer (ex NMSC) diagnosis in 2009-2013.

Five-year survival (ASNS) for patients diagnosed in 2009-2013 varied slightly by gender, being 54.3% among men compared to 58.5% among women. Survival from cancer (ex NMSC) is also strongly related to age, with five-year survival decreasing as age increases. Five-year net survival for patients diagnosed in 2009-2013 ranged from 81.8% among patients aged 15-44 at diagnosis to 40.3% among those aged 75 and over. This is relevant as the numbers of older people in the population increases. (Figure 20)

Figure 20: Five-year net survival by sex and age at diagnosis: All cancers (ex. NMSC), diagnosed 2009-2013
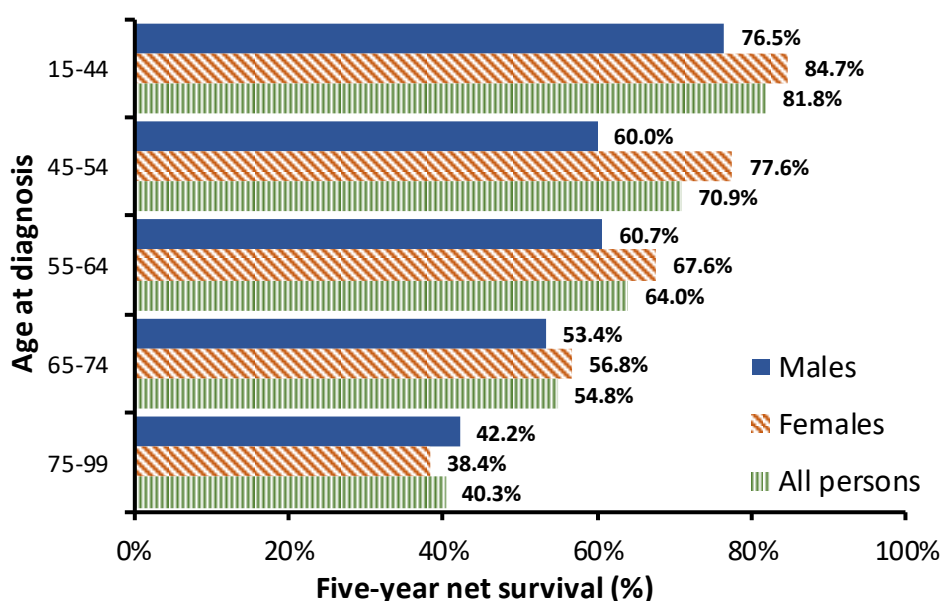

5.2: Trends in cancer survival

Within the last 15 years, survival rates in NI have significantly improved. Five-year survival (ASNS) has increased from 36.7% for males and 47.9% for females receiving a diagnosis between 1994 and 1998 to 54.3% for males and 58.5% for females diagnosed between 2009

and 2013. Estimates of net survival for patients diagnosed between 2012 and 2016 are 73.6% for one-year post diagnosis and 57.6% for five years from a diagnosis. (Figure 21)

Figure 21: Trends in age-standardised net survival by sex: All cancers (ex. NMSC), diagnosed 1994-2013.
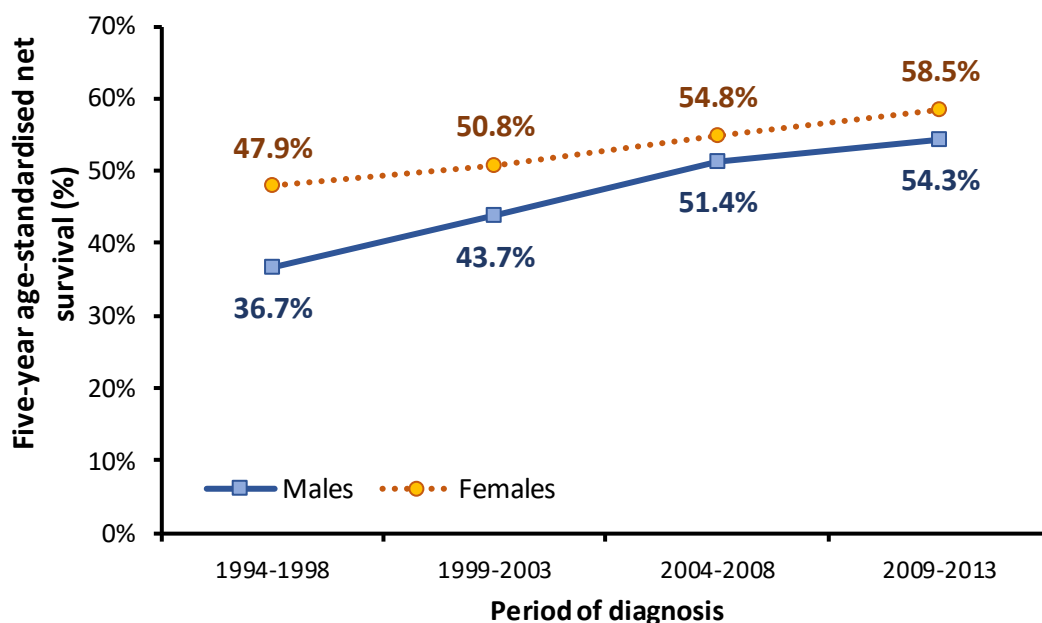

5.3: Cancer type

Five-year survival (ASNS) varies considerably by cancer site, ranging from 95.7% for testicular cancer to 6.0% for pancreatic cancer. In particular, five-year survival (ASNS) for the most common cancer types was 83.4% for female breast cancer, 61.7% for bowel cancer, 12.1% for lung cancer and 87.0% for prostate cancer. In addition to poor survival for lung cancer, survival is also very low for other tobacco related cancers (e.g. pancreatic, stomach and oesophageal cancers). Among the life style factors associated with cancer risk, changes in prevalence of tobacco use could thus potentially have the greatest impact on cancer incidence and survival trends. (Figure 22)

Five-year survival (ASNS) showed significant improvement between 2004-2008 and 2009-2013 for all cancers (ex NMSC) and bowel cancer among males and for all cancers (ex NMSC), bowel cancer and kidney cancer among females. Survival (ASNS) did not decrease significantly for any cancer site between 2004-2008 and 2009-2013.

Figure 22: Five-year net survival by cancer type: All cancers (ex NMSC), diagnosed 2009 -2013
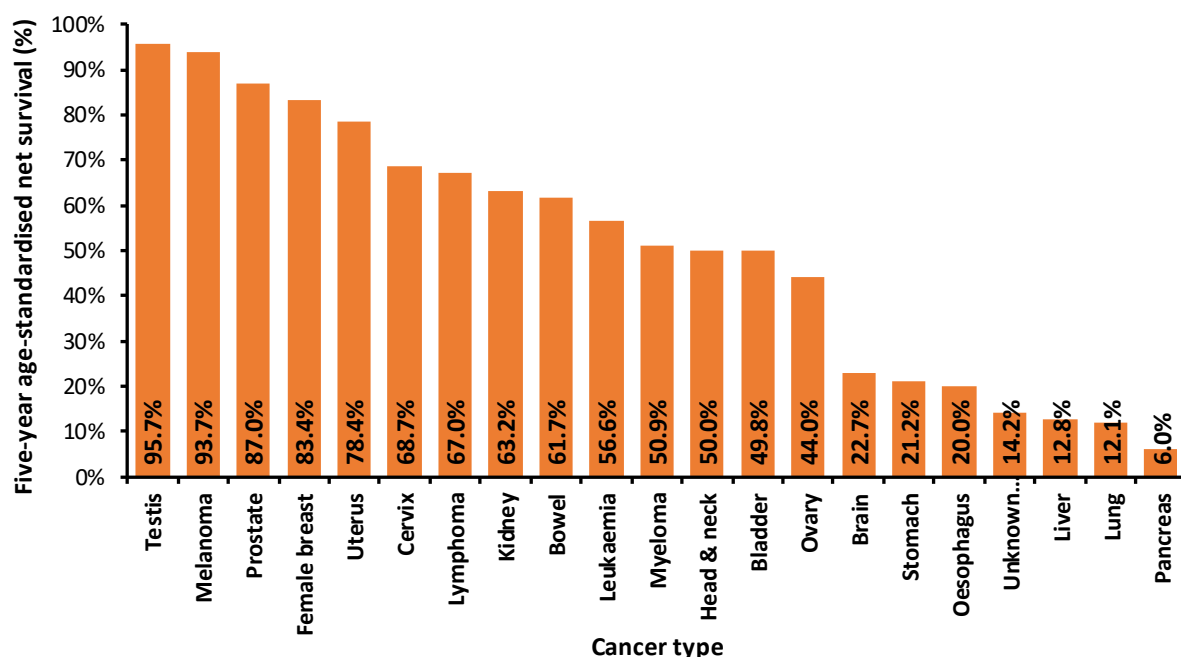
6. Cancer stage

Cancer stage describes the size of a cancer and how far it has grown and spread. This information influences what treatments are offered/required. During 2013-2017, 82.4% of cancer cases diagnosed had a stage assigned, 27.6% were diagnosed at stage 1 (33.5% of staged cases) and 20.9% were diagnosed at stage IV (25.4% of staged cases). (Figure 23)

Figure 23: Stage distribution (TNM version 7) at diagnosis by sex: All cancers (ex NSMC), diagnosed 2013-2017
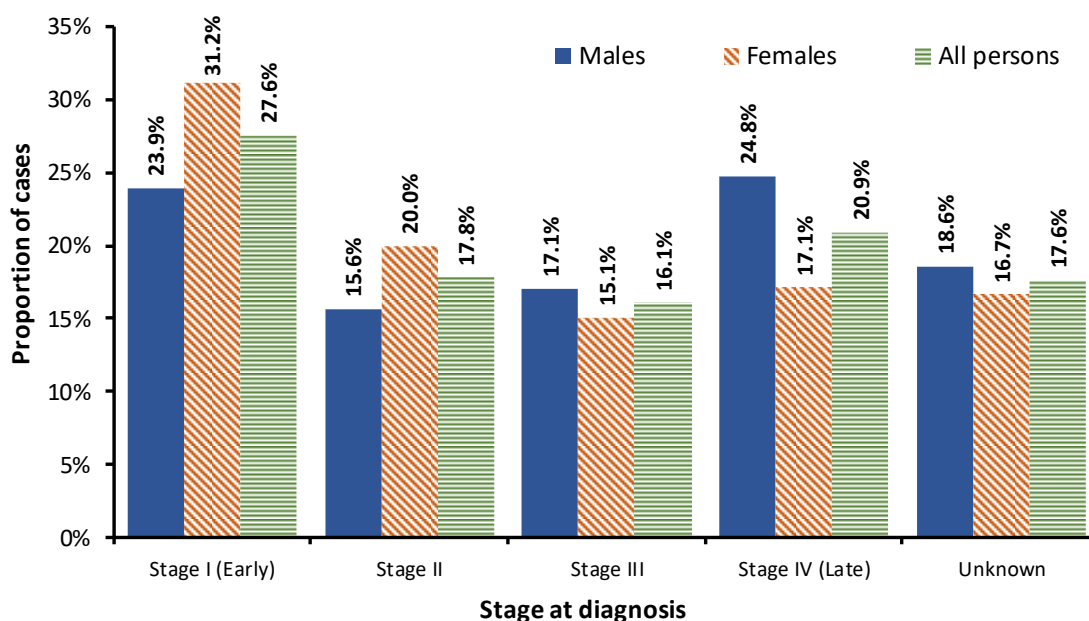
During 2013-2017 half (48%) of pancreatic cancers, 44% of lung cancers, 19% of prostate cancers and 5% of breast cancers were diagnosed at late stage IV. This compares with 8% of pancreatic cancers, 40% of breast cancers. 32% of prostate cancers and 18% lung cancers diagnosed at early stage I.

6.1: Cancer survival and stage

Stage at diagnosis is one of the most important factors in cancer (ex. NMSC) survival, with five-year survival decreasing as stage of diagnosis increases. Five-year survival (ASNS) for all persons ranged from 91.8% (males: 89.5%, females:93.6%) for early stage (stage I) disease to 12.3% (males: 13.5%, females: 10.3%) for late stage (stage IV) disease and was 42.5% for un-staged cancers. (Figure 24)
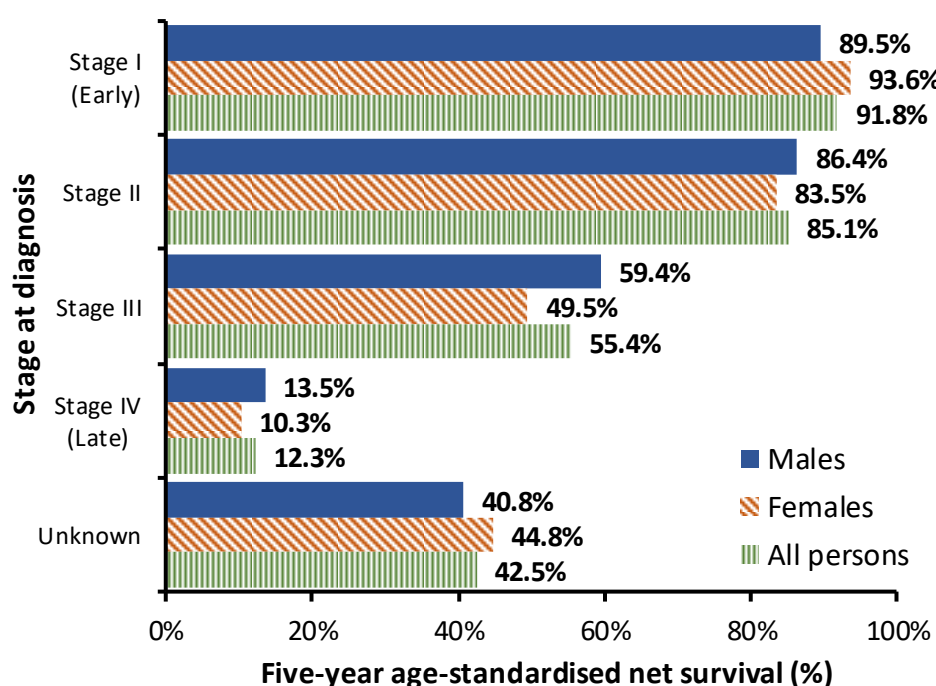
Figure 24: Five-year net survival by sex and stage: All cancers (ex. NMSC), diagnosed 2009-2013


7. Cancer and comorbidities

Cancer is more common in older persons who often have several other diseases/ comorbidities in addition to their cancer. These conditions will affect the patients' ability to undertake some investigations and treatments while also masking symptoms of cancer and impacting survival prospects.

Almost half (49%) of male and 42% of female cancer (ex. NMSC) patients diagnosed in 2016 had a comorbidity recorded up to one year prior to their diagnosis. This proportion increased with increasing age, and varied depending upon cancer type, ranging from 21% among male melanoma patients to 75% among male liver cancer patients, and from 16% among female breast cancer patients to 76% among female liver cancer patients. The most common comorbidity was hypertension, which was recorded for 23% of male and 20% of female cancer patients. Some comorbidities and cancer have common risk factors (e.g. tobacco use, obesity) - 20% of lung cancer patients had heart disease as a recorded comorbidity and 30 % chronic lung disease.

Cancer survival was strongly related to the number of comorbidities recorded for a patient ranging from 83.5% one year from diagnosis among those with no comorbidity to 48.3% one year from diagnosis among those with four or more comorbidities. However, this variation will be partly related to the age of the patient and cancer type. (Figure 25)

Figure 25: Survival by existence of comorbidities: Specific cancers, diagnosed 2016
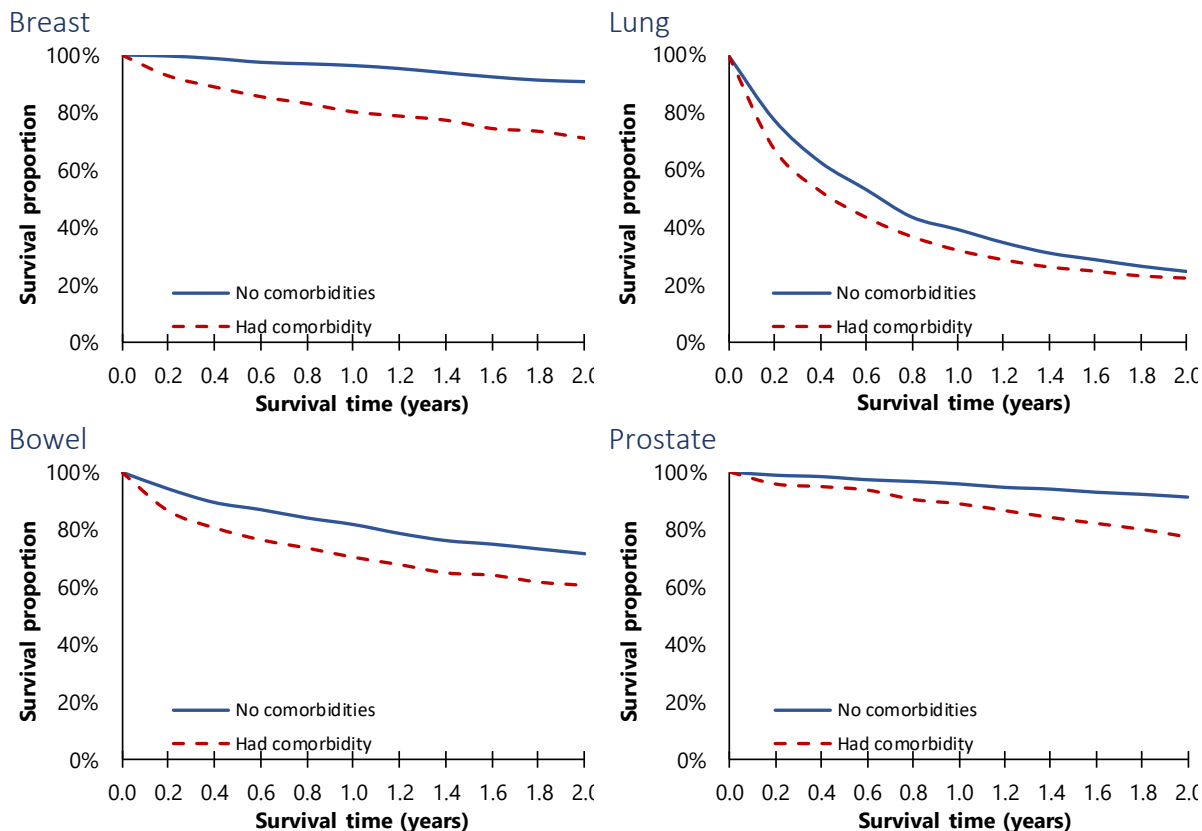
8. The Impact of COVID-19 on cancer services

Early in 2020 the first cases of COVID-19, were documented. This led to a world-wide pandemic with many aspects of the health service overwhelmed. Restrictions were placed on population movement. Cancer screening services were temporarily ceased. The number of patients interacting with the service fell and treatment schedules altered. The NI Cancer Registry monitored the numbers of cancer cased diagnosed pathologically comparing them with similar periods before the pandemic.

From 1st March to 10th October 2020, the number of patients with a pathological sample indicating cancer was 22% lower than the average number for the same time period in 2017-2019. Based upon the monthly trend in patients with pathology samples indicating cancer, there was an estimated shortfall of 1,200 patients during March-September 2020 compared to the expected number. Some of these "missing" patients may have a clinical only diagnosis (e.g. as a result of an emergency hospital admission). Improvements were apparent in the Jun-Aug period, with patient volume only 9% below 2017-2019 levels in September 2020. (Figure 26)

Figure 26: Trend in patients with pathology samples indicating cancer by month and year sample first taken.
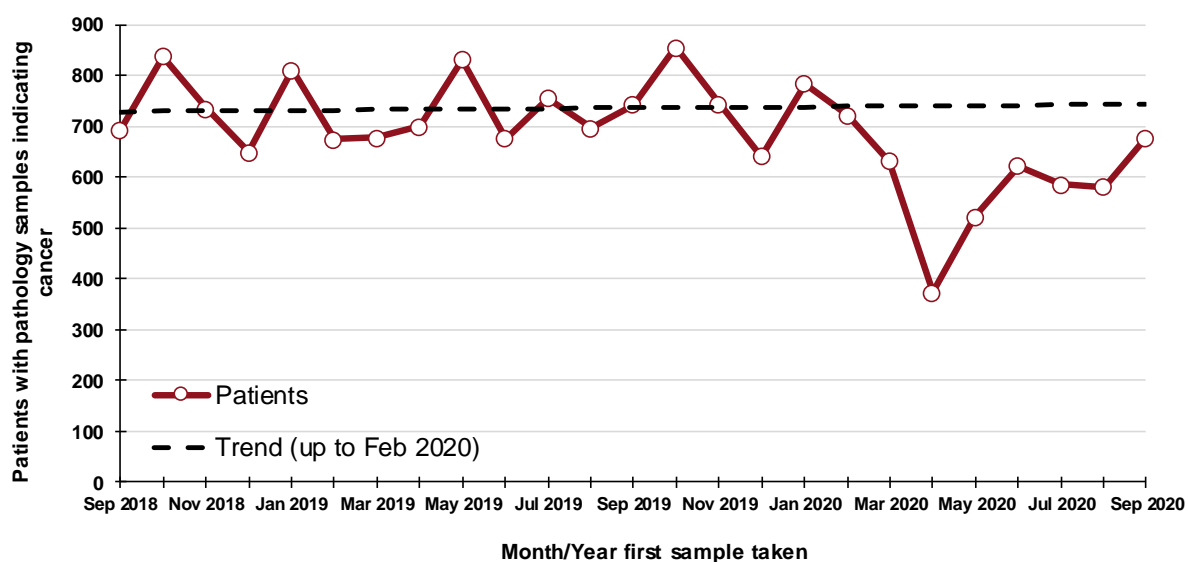
The 22% reduction in the number of patients with a pathology sample indicating cancer in Mar-Sept 2020, compared to the average value for Mar-Sept in 2017-2019 varied slightly by

demographic group. Specifically, there was a 21% decrease among males and a 22% decrease among females, while a decrease of 22% occurred in the number of patients aged 0-69 years, compared to a decrease of 21% in the number aged 70 and older. Reductions were greatest in Craigavon (34%) and lowest in Belfast (16%). (Table 3)

Table 3: Percentage change from 2017-2019 to 2020 in the number of patients with pathology samples indicating cancer, and estimates of the number of "missed" patients in 2020: Patient demographics

Patient demographics	Percentage change from 2017-2019 to 2020 in the number of patients with pathology samples indicating cancer: Weeks 10-41 (1 Mar – 10 Oct in 2020)	Estimated number of "missed" patients at the end of September 2020
All persons	**-22%**	**1,200**
Gender		
Males	**-21%**	**560**
Females	**-22%**	**630**
Age		
Ages 0-69	**-22%**	**690**
Ages 70+	**-21%**	**500**
Pathology Lab		
Belfast	**-16%**	**450**
Altnagelvin	**-26%**	**260**
Antrim	**-23%**	**140**
Craigavon	**-34%**	**350**

Compared to the annual average for Mar-Sept in 2017-2019, the number of patients with a pathology sample indicating lung cancer and upper GI cancer in 2020 decreased by 29%, while those indicating head & neck and gynaecological cancer decreased by 24%. However, the number of patients with pathology samples indicating bowel or breast cancer was only 15% and 17% lower respectively than 2017-2019 levels due to increases in patient volumes to above normal levels in August and September. Pathologically diagnosed haematological cancer patient volume was only 5% lower than in previous years. (Table 4)

Cancer in numbers: provided by N. Ireland Cancer Registry November 2020

Table 4: Percentage change from 2017-2019 to 2020 in the number of patients with pathology samples indicating cancer, and estimates of the number of "missed" patients in 2020: Cancer type

Cancer type	Percentage change from 2017-2019 to 2020 in the number of patients with pathology samples indicating cancer: Weeks 10-41 (1 Mar – 10 Oct in 2020)	Estimated number of "missed" patients at the end of September 2020
All cancers (ex NMSC)	-22%	1,200
NMSC	-35%	1,270
Bowel	-15%	110
Lung	-29%	120
Female breast	-17%	150
Prostate	-23%	170
Gynaecological	-24%	100
Upper GI	-29%	70
Head & Neck	-24%	60
Urinary	-14%	30
Haematological	-5%	50
Melanoma	-27%	110
Other cancer	0%	20
NMSC		
Screening age		
Bowel cancer (Ages 60-74)	-17%	80
Breast cancer (Ages 50-70)	-15%	70

Cancer in numbers: provided by N. Ireland Cancer Registry November 2020

Supplementary information

Projected number of cases for all cancers (ex. NMSC) by gender and cancer type

Cancer type	Males					Females				
	2013-2017 cases per year	2025		2040		2013-2017 cases per year	2025		2040	
		Projected number of cases	Prediction interval	Projected number of cases	Prediction interval		Projected number of cases	Prediction interval	Projected number of cases	Prediction interval
All (ex. NMSC)	4,691	5,463	5,214 - 5,711	6,788	6,400 - 7,177	4,710	5,840	5,605 - 6,074	7,450	6,995 - 7,905
Colon	424	478	412 - 544	649	564 - 734	395	478	426 - 531	639	563 - 715
Rectal	228	244	201 - 287	326	272 - 380	138	151	124 - 179	193	161 - 226
Breast	-	-	-	-	-	1,398	1,769	1,649 - 1889	2,201	1,986 - 2,417
Lung	680	815	725 - 905	1,003	870 - 1,136	610	956	856 - 1,055	1,344	1,102 - 1,587
Prostate	1,133	1,272	1,154 - 1,390	1,537	1,360 - 1,714	-	-	-	-	-
Head & Neck	232	291	242 - 341	358	281 - 434	96	140	111 - 169	191	142 - 240
Oesophageal	151	213	173 - 254	292	222 - 362	67	81	61 - 102	100	75 - 125
Stomach	137	123	91 - 156	115	83 - 146	80	75	55 - 95	68	47 - 88
Liver	85	164	127 - 200	237	161 - 314	48	85	58 - 112	134	53 - 215
Pancreatic	130	181	143 - 219	251	194 - 308	124	177	143 - 210	262	206 - 319
Melanoma	174	266	213 - 318	433	320 - 546	203	273	233 - 313	370	306 - 434
Cervical	-	-	-	-	-	83	46	30 - 63	23	12 - 34
Uterine	-	-	-	-	-	249	335	291 - 378	459	392 - 526
Ovarian	-	-	-	-	-	208	201	167 - 234	235	196 - 274
Kidney	199	309	262 - 356	417	331 - 503	116	167	137 - 196	213	167 - 259
Bladder	155	163	125 - 200	205	163 - 247	64	78	57 - 99	119	89 - 149
Brain & CNS	85	93	70 - 117	104	76 - 132	64	77	57 - 97	97	72 - 122
NH Lymphoma	184	233	189 - 277	287	222 - 352	151	167	137 - 197	217	179 - 256
Leukaemia	134	167	132 - 202	207	163 - 251	95	115	91 - 139	142	113 - 170

CNS: Central Nervous System, NMSC: Non-Melanoma Skin Cancer, NH: Non-Hodgkin's

**Cancer in numbers: provided by N. Ireland Cancer Registry November 2020**

Projected ten-year prevalence for all cancers (ex. NMSC) by gender and cancer type

Cancer type	Male				Female			
	Projected 10-year prevalence in 2033		Projected change in 10-year prevalence by 2033 compared to 2018		Projected 10-year prevalence in 2033		Projected change in 10-year prevalence by 2033 compared to 2018	
	Number	Prediction interval	Percentage change	Prediction interval	Number	Prediction interval	Percentage change	Prediction interval
All cancers ex. NMSC	30,292	29,259 , 31,326	42.4%	37.5% , 47.2%	34,717	33,960 , 35,474	43.3%	40.1% , 46.4%
Colon cancer	3,215	2,982 , 3,447	48.8%	38.1% , 59.6%	2,858	2,649 , 3,066	45.2%	34.6% , 55.8%
Rectal cancer	1,742	1,600 , 1,884	33.1%	22.2% , 43.9%	1,042	964 , 1,120	29.3%	19.6% , 39.0%
Breast cancer	-	-	-	-	14,515	14,048 , 14,982	40.5%	36.0% , 45.1%
Lung cancer	1,527	1,399 , 1,656	49.6%	37.0% , 62.2%	2,111	1,888 , 2,333	92.6%	72.3% , 112.9%
Prostate cancer	12,104	11,609 , 12,599	45.5%	39.5% , 51.4%	-	-	-	-
Head & neck cancer	1,363	1,226 , 1,500	20.5%	8.4% , 32.6%	658	574 , 743	29.0%	12.5% , 45.7%
Oesophageal cancer	600	507 , 693	57.9%	33.4% , 82.4%	246	205 , 286	54.7%	28.9% , 79.9%
Stomach cancer	361	315 , 407	22.4%	6.8% , 38.0%	208	172 , 243	11.2%	-8.0% , 29.9%
Liver cancer	347	252 , 442	110.3%	52.7% , 167.9%	122	86 , 157	96.8%	38.7% , 153.2%
Pancreatic cancer	251	197 , 305	74.3%	36.8% , 111.8%	243	166 , 319	118.9%	49.5% , 187.4%
Melanoma	2,202	2,035 , 2,369	82.7%	68.9% , 96.6%	2,753	2,580 , 2,926	64.1%	53.8% , 74.4%
Cervical cancer	-	-	-	-	626	535 , 717	-12.9%	-25.6% , -0.3%
Uterine cancer	-	-	-	-	2,798	2,623 , 2,973	54.9%	45.2% , 64.6%
Ovarian cancer	-	-	-	-	1,268	1,174 , 1,361	27.1%	17.6% , 36.4%
Kidney cancer	2,068	1,868 , 2,269	95.6%	76.7% , 114.7%	1,391	1,193 , 1,590	99.9%	71.4% , 128.4%
Bladder cancer	659	591 , 727	-2.4%	-12.4% , 7.7%	254	218 , 289	12.4%	-3.5% , 27.9%
Brain & CNS cancer	253	210 , 295	14.5%	-5.0% , 33.5%	201	169 , 234	18.9%	0.0% , 38.5%
NH lymphoma	1,586	1,455 , 1,717	49.9%	37.5% , 62.3%	1,253	1,135 , 1,371	38.0%	25.0% , 51.0%
Leukaemia	1,097	994 , 1,200	49.7%	35.6% , 63.7%	739	655 , 823	41.3%	25.2% , 57.4%

Standardised incidence ratios (SIR) compared to NI average (SIR=100) by sex and deprivation quintile: Specific cancers, diagnosed 2014-2018
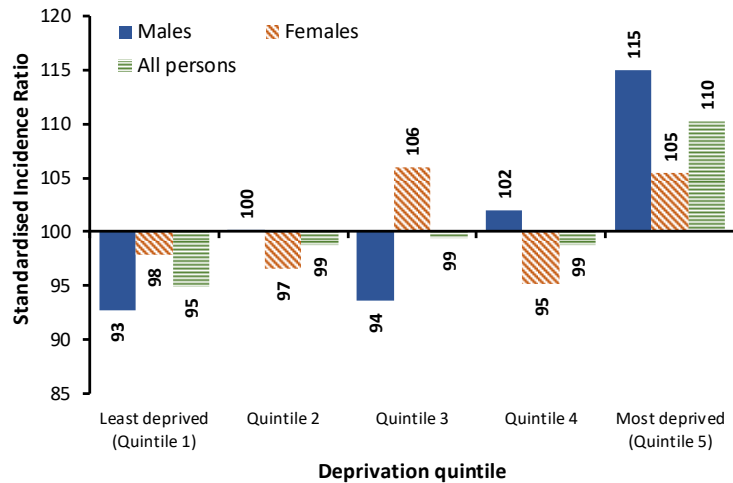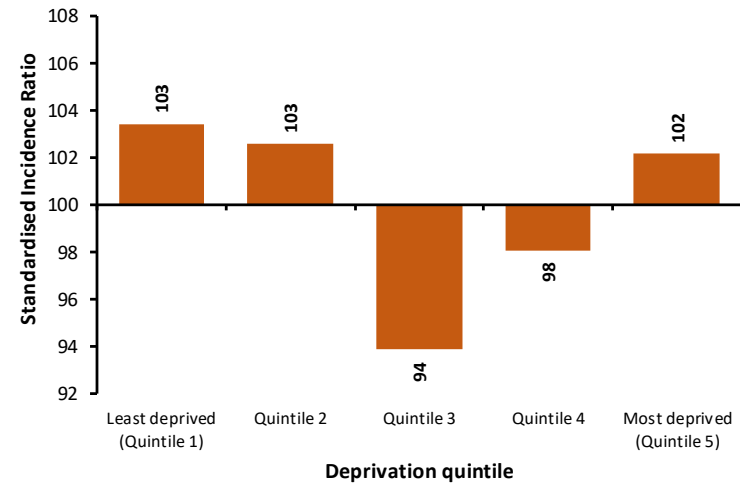
Prostate cancer
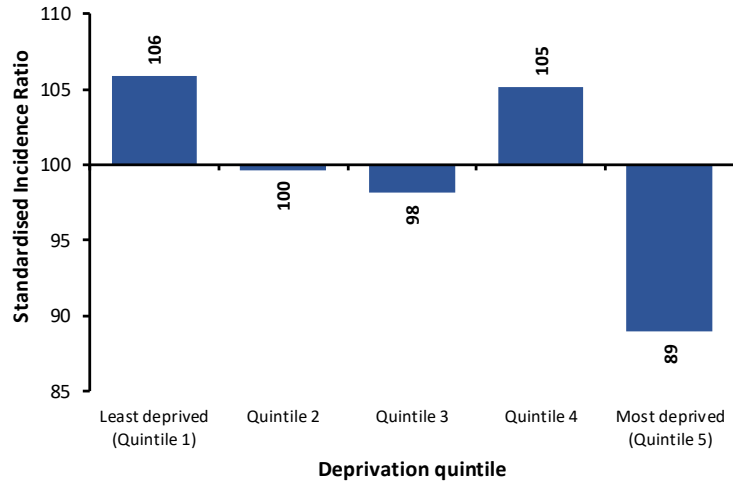
Malignant melanoma
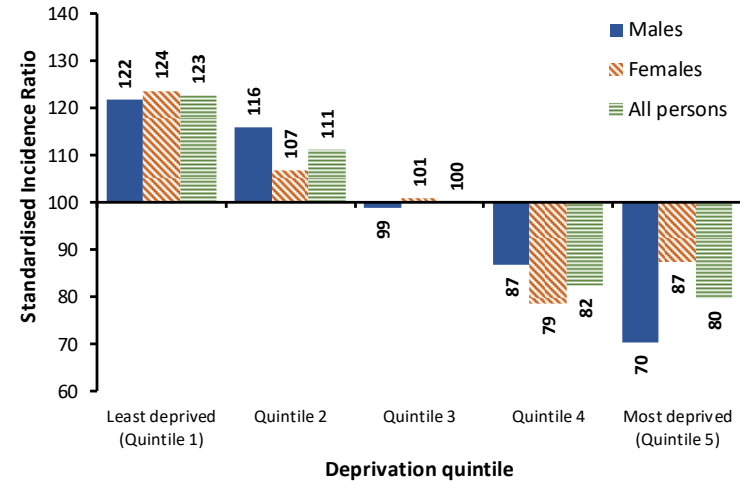
Bowel cancer

Female breast cancer

Standardised incidence ratios compare incidence rates in each deprivation quintile with the Northern Ireland incidence rate. A value above 100 means that incidence rates in that deprivation quintile are greater than the Northern Ireland average. This measure takes account of population size and age structure

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Cancer in numbers: provided by N. Ireland Cancer Registry November 2020

Five-year survival (ASNS) by cancer type, sex and period of diagnosis: All cancers (ex NMSC), diagnosed 2004-2013

Cancer type	Sex and period of diagnosis			
	Male		Female	
	2004-2008	2009-2013	2004-2008	2009-2013
All cancers (ex NMSC)	**51.4%**	**54.3%***	**54.8%**	**58.5%***
Head and neck cancer	56.0%	49.7%	57.0%	51.3%
Oesophageal cancer	17.0%	19.0%	16.4%	23.4%
Stomach cancer	15.1%	21.0%	21.7%	21.9%
Bowel cancer	53.8%	61.6%*	55.2%	61.9%*
Liver cancer	6.2%	12.2%	5.8%	15.7%
Pancreatic cancer	4.8%	4.7%	4.9%	7.5%
Lung cancer	9.3%	11.2%	11.2%	13.2%
Melanoma	87.4%	90.4%	92.4%	96.0%
Breast cancer			80.7%	83.4%
Cervical cancer			66.1%	68.7%
Uterine cancer			74.6%	78.4%
Ovarian cancer (inc. fallopian tube)			37.6%	44.0%
Prostate cancer	87.7%	87.0%		
Testicular cancer	98.7%	95.7%		
Kidney cancer	56.4%	60.0%	51.5%	67.4%*
Bladder cancer	58.3%	54.3%	50.8%	39.7%
Brain cancer (inc. CNS)	24.4%	20.9%	26.2%	25.1%
Lymphoma	61.0%	65.0%	64.4%	69.2%
Myeloma (inc. plasma cell)	44.7%	50.8%	51.4%	50.9%
Leukaemia	52.8%	55.0%	52.5%	59.0%
Unknown primary cancer	11.7%	14.0%	10.4%	14.3%

Represents a statistically significant change over time.
NMSC: Non-melanoma skin cancer, CNS: Central Nervous System, ASNS: Age-standardised net survival.