

All cancers excluding non-melanoma skin cancer [NMSC]



Number of cases per year (2014-2018) ¹			Number of deaths per year (2014-2018) ¹		
Male	Female	Both sexes	Male	Female	Both sexes
4,810	4,819	9,629	2,304	2,096	4,400
Five-year net survival (2009-2013)			25-year prevalence (2018)		
Male	Female	Both sexes	Male	Female	Both sexes
54.3%	58.5%	56.6%	28,937	36,785	65,722

Incidence

During 2014-2018:

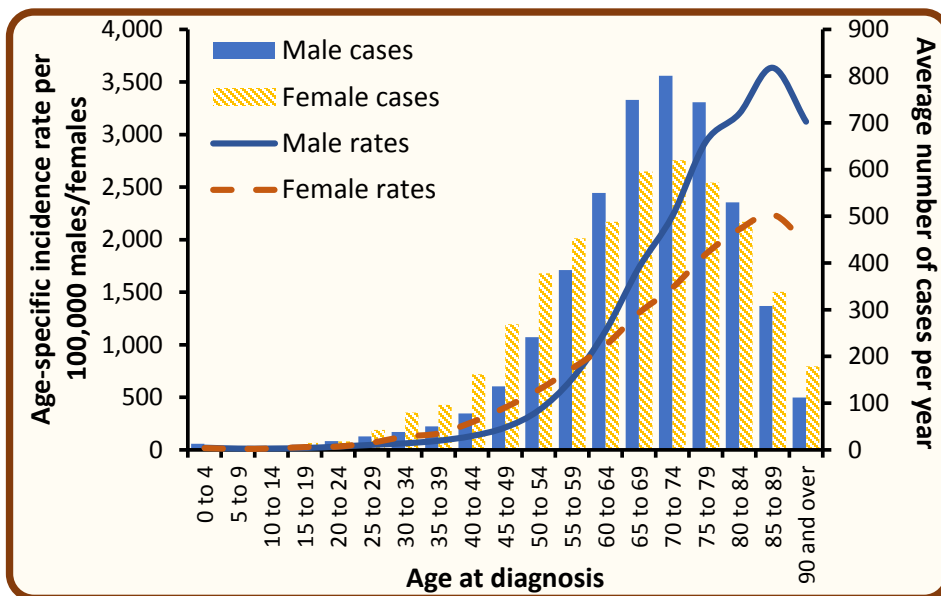
- There were 4,810 male and 4,819 female cases of cancer (ex NMSC) diagnosed each year.
- There were 670.3 male and 554.1 female cases of cancer (ex NMSC) per 100,000 males/females diagnosed each year.
- Cancer (ex NMSC) made up 68.5% of all male cancers, and 75.0% of all female cancers.
- The risk of developing cancer (ex NMSC) before the age of 75 was 1 in 3.5 for men and 1 in 3.7 for women.

Incidence by sex and age at diagnosis: All cancers (ex NMSC) 2014-2018¹

During 2014-2018:

- The median age at diagnosis was 70 for men and 68 for women.
- Cancer risk increased with age, with 67.4% of men and 58.0% of women aged 65 years or more at diagnosis.
- 11.4% of cases were diagnosed among those aged under 50.

Age at diagnosis	Average cases per year		
	Male	Female	Both sexes
0 - 49	390	706	1,096
50 - 64	1,176	1,319	2,497
65 - 74	1,550	1,216	2,766
75 +	1,694	1,577	3,272
All ages	4,810	4,819	9,629



Incidence by sex and year of diagnosis: All cancers (ex NMSC) 2009-2018

- Among males the number of cases of cancer (ex NMSC) increased by 9.6% from an annual average of 4,388 cases in 2009-2013 to 4,810 cases in 2014-2018.
- Among females the number of cases of cancer (ex NMSC) increased by 11.3% from an annual average of 4,329 cases in 2009-2013 to 4,819 cases in 2014-2018.

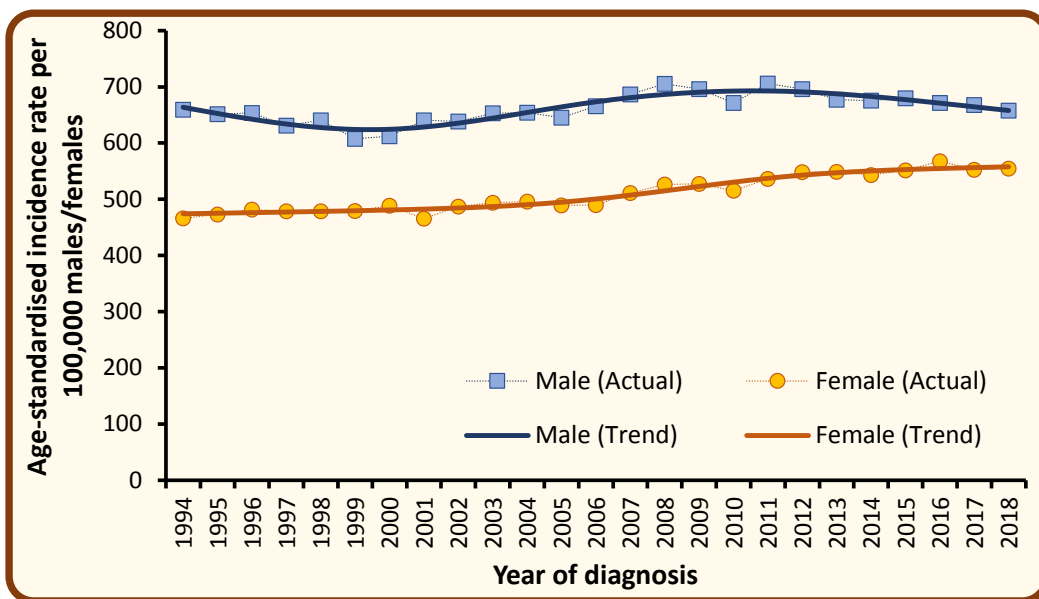
	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Male	4,223	4,162	4,492	4,535	4,527	4,634	4,770	4,789	4,923	4,934
Female	4,133	4,111	4,332	4,494	4,576	4,593	4,729	4,937	4,874	4,963
Both sexes	8,356	8,273	8,824	9,029	9,103	9,227	9,499	9,726	9,797	9,897

1. Annual averages based upon several years have been rounded to the nearest integer. Sums of numbers in table rows or columns may thus differ slightly from the given total.

NMSC: Non-melanoma skin cancer

Trends in age-standardised incidence rates by sex: All cancers (ex NMSC) 1994-2018

- Among males age-standardised incidence rates of cancer (ex NMSC) decreased by 2.8% from 689.3 per 100,000 person years in 2009-2013 to 670.3 cases per 100,000 persons years in 2014-2018. This difference was statistically significant.
- Among females age-standardised incidence rates of cancer (ex NMSC) increased by 3.5% from 535.5 per 100,000 person years in 2009-2013 to 554.1 cases per 100,000 persons years in 2014-2018. This difference was statistically significant.

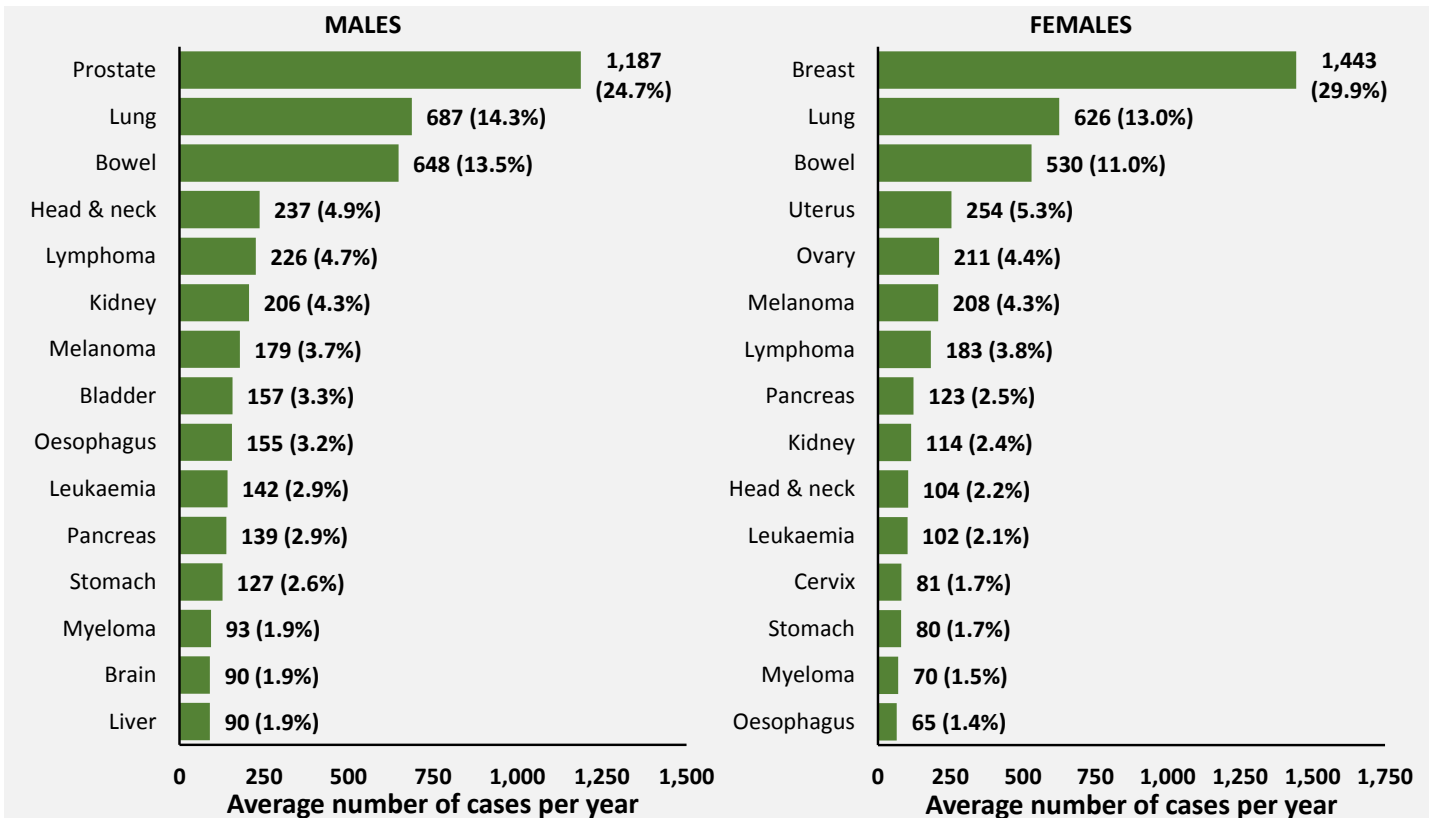


Age-standardised incidence rates illustrate the change in the number of cases within a population of a fixed size and age structure (2013 European Standard).

They thus represent changes other than those caused by population growth and/or ageing.

Incidence by sex and cancer type: All cancers (ex NMSC) 2014-2018¹

The most common cancer types among men (excluding NMSC), were prostate cancer (24.7%), lung cancer (14.3%) and bowel cancer (13.5%), while the most common cancer types among women (excluding NMSC) were breast cancer (29.9%), lung cancer (13.0%) and bowel cancer (11.0%).

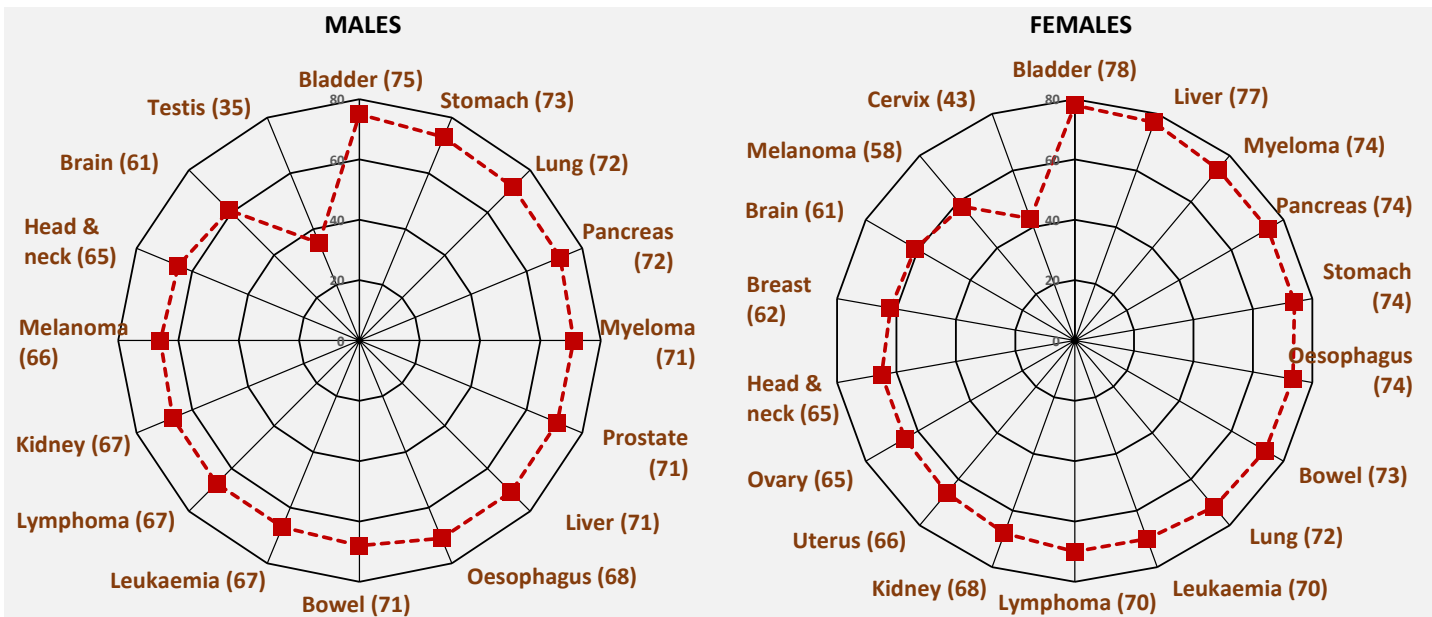


1. Annual averages based upon several years have been rounded to the nearest integer. Sums of numbers in table rows or columns may thus differ slightly from the given total.

NMSC: Non-melanoma skin cancer

Median age at diagnosis by sex and cancer type: All cancers (ex NMSC) 2014-2018¹

The median age at diagnosis for most cancer types during 2014-2018 was 65 years or more. Exceptions include testicular cancer (35) and brain cancer (61) among males, and cervical cancer (43), melanoma (58), brain cancer (61) and breast cancer (62) among females.



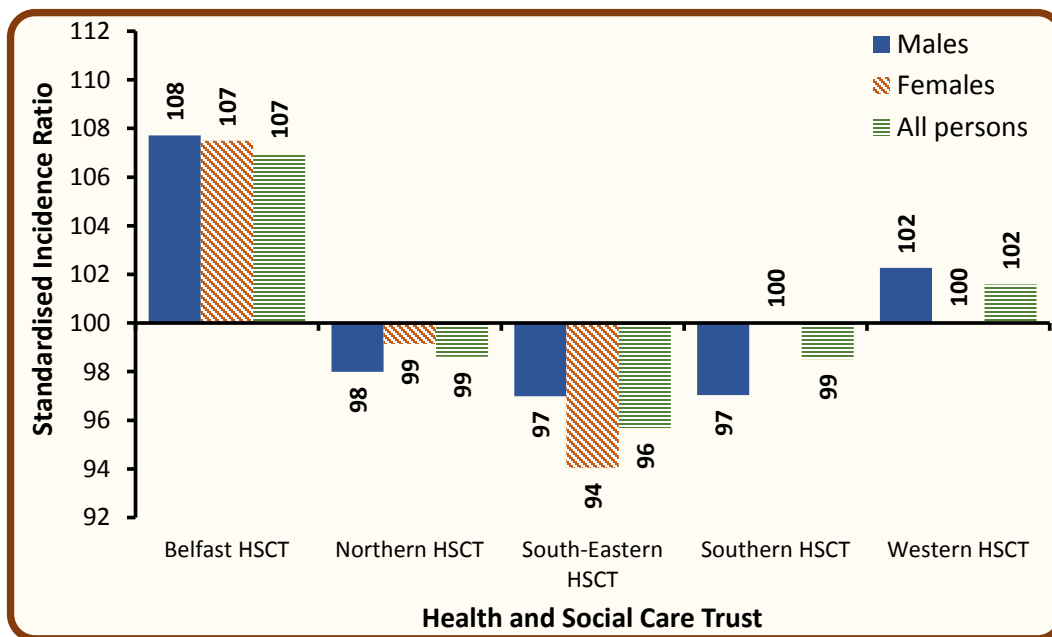
Incidence (cases and rates) by sex and Health and Social Care Trust (HSCT): All cancers (ex NMSC) 2014-2018¹

The annual number of cases during 2014-2018 varied in each HSCT due to variations in population size and age (see table).

After accounting for these factors, incidence rates (see figure):

- in Belfast HSCT were significantly higher than the NI average.
- in Northern HSCT did not vary significantly from the NI average.
- in South-Eastern HSCT were significantly lower than the NI average.
- in Southern HSCT did not vary significantly from the NI average.
- in Western HSCT did not vary significantly from the NI average.

Health and Social Care Trust	Average cases per year		
	Male	Female	Both sexes
Belfast HSCT	915	992	1,907
Northern HSCT	1,258	1,259	2,517
South-Eastern HSCT	978	941	1,919
Southern HSCT	876	893	1,769
Western HSCT	782	734	1,516
Northern Ireland	4,810	4,819	9,629



Standardised incidence ratios compare incidence rates in each HSC Trust with the Northern Ireland incidence rate.

A value above 100 means that incidence rates in that HSC Trust are greater than the Northern Ireland average.

This measure takes account of population size and age structure. Differences are thus not a result of these factors.

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NMSC: Non-melanoma skin cancer, HSCT: Health and Social Care Trust

Incidence (cases and rates) by sex and deprivation quintile: All cancers (ex NMSC) 2014-2018¹

The annual number of cases during 2014-2018 varied in each deprivation quintile due to variations in population size and age (see table).

After accounting for these factors, incidence rates (see figure):

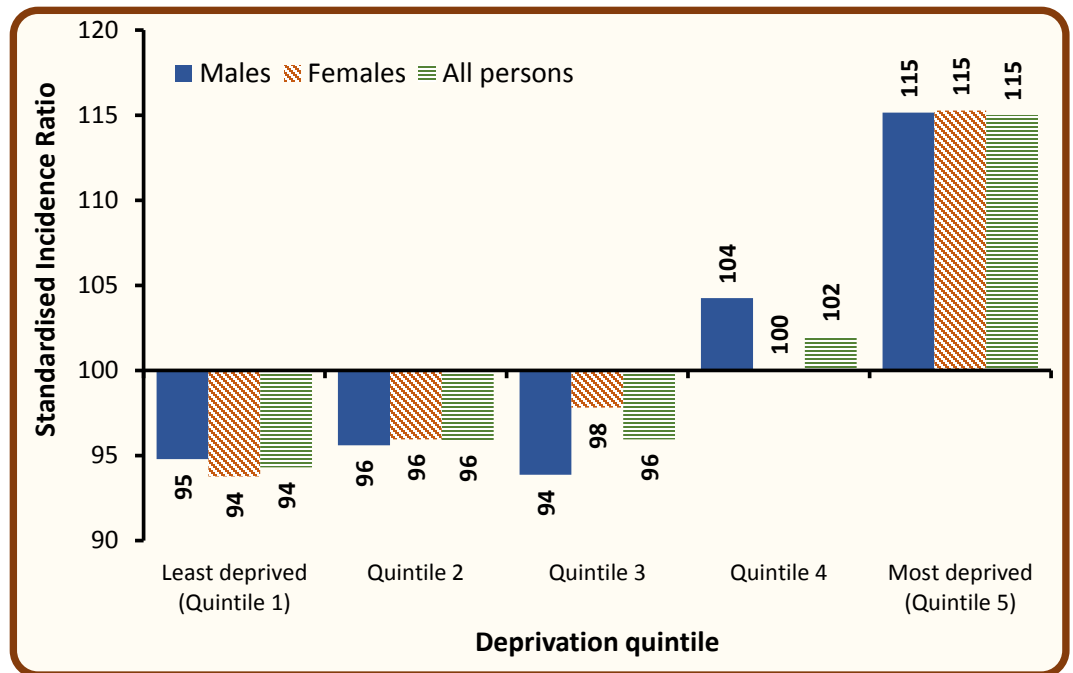
- in the most socio-economically deprived areas were 15.0% higher than the NI average.
- in the least socio-economically deprived areas were 5.7% lower than the NI average.

Deprivation quintile	Average cases per year		
	Male	Female	Both sexes
Least deprived (Quintile 1)	958	959	1,918
Quintile 2	979	968	1,947
Quintile 3	961	977	1,937
Quintile 4	1,004	970	1,974
Most deprived (Quintile 5)	908	944	1,852
Northern Ireland	4,810	4,819	9,629

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. Differences are thus not a result of these factors.



Incidence by sex, cancer type and deprivation quintile: All cancers (ex NMSC) 2014-2018

While cancer incidence is higher in the most deprived communities overall, the relationship between cancer and socio-economic deprivation varies by cancer site. During 2014-2018:

- Incidence of head and neck cancer, oesophageal cancer, stomach cancer (male only), bowel cancer (male only), liver cancer, lung cancer, cervical cancer, kidney cancer (female only) and unknown primary cancer (female only) was higher in the most deprived areas than the NI average.
- Incidence of melanoma, prostate cancer and brain cancer (male only) was higher in the least deprived areas than the NI average.

Incidence rates higher in most deprived areas than NI average	Incidence rates higher in least deprived areas than NI average	Incidence rates <u>not</u> higher than the NI average in either the most or least deprived areas ²
▪ Head and neck cancer	▪ Melanoma	▪ Pancreatic cancer
▪ Oesophageal cancer	▪ Prostate cancer	▪ Breast cancer
▪ Stomach cancer (male only)	▪ Brain cancer (inc. CNS) (male only)	▪ Uterine cancer
▪ Bowel cancer (male only)		▪ Ovarian cancer (inc. fallopian tube)
▪ Liver cancer		▪ Testicular cancer
▪ Lung cancer		▪ Bladder cancer
▪ Cervical cancer		▪ Lymphoma
▪ Kidney cancer (female only)		▪ Myeloma (inc. plasma cell)
▪ Unknown primary cancer (female only)		▪ Leukaemia

1. Annual averages based upon several years have been rounded to the nearest integer. Sums of numbers in table rows or columns may thus differ slightly from the given total.

2. These cancers can still vary in other ways by geographic area and/or deprivation quintile (e.g. by being higher than average in the middle deprivation quintile).

NMSC: Non-melanoma skin cancer, CNS: Central Nervous System

Survival

- 70.0% of patients were alive one year and 49.1% were alive five years from a cancer (ex NMSC) diagnosis in 2009-2013. (observed survival)
- Age-standardised net survival (ASNS), which removes the effect of deaths from causes unrelated to cancer, 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 was 54.3% among men and 58.5% among women.
- Estimates for survival (ASNS) of patients diagnosed during 2012-2016 are 73.6% one year, and 57.6% five years from diagnosis.

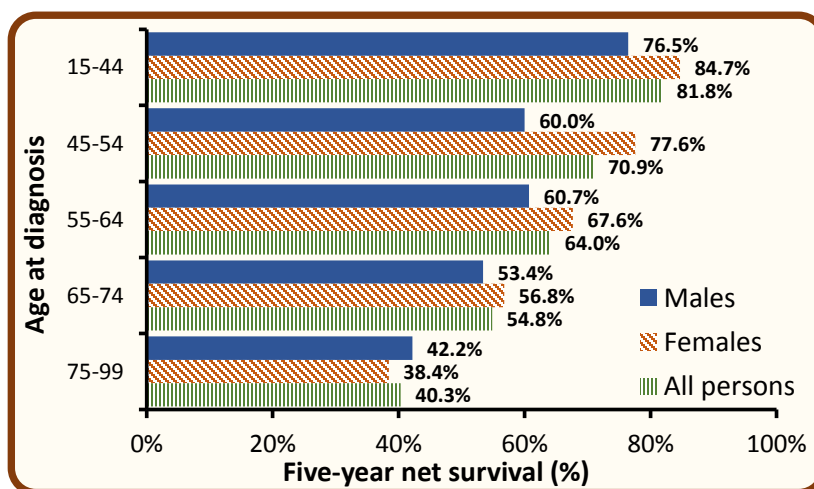
Period of diagnosis ¹	Gender	Observed survival		Age-standardised net survival	
		One-year	Five-years	One-year	Five-years
2009-2013	Male	67.9%	45.1%	71.2%	54.3%
	Female	72.1%	53.2%	73.3%	58.5%
	Both sexes	70.0%	49.1%	72.5%	56.6%
2012-2016 estimates	Male	69.6%	47.0%	72.9%	56.0%
	Female	72.4%	53.1%	73.8%	58.5%
	Both sexes	71.0%	50.1%	73.6%	57.6%

Observed survival is the proportion of patients still alive one/five years after diagnosis. However, in this measure patients may have died from causes unrelated to their cancer.

Age-standardised net survival is the proportion of patients who would survive if the patient could not die from causes unrelated to their cancer. This measure is more typically used in studies of cancer survival.

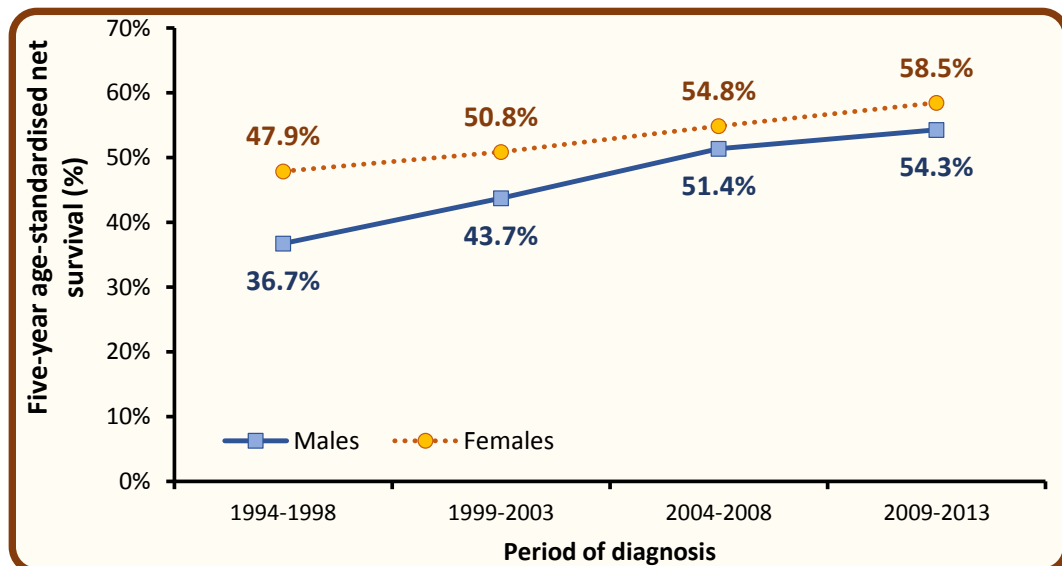
Survival by sex and age at diagnosis: All cancers (ex NMSC) 2009-2013

- Survival from cancer (ex NMSC) is strongly related to age with five-year survival decreasing as age increases.
- Five-year net survival ranged from 81.8% among patients aged 15-44 at diagnosis to 40.3% among those aged 75 and over.
- Five-year net survival among patients aged 75 and over was 42.2% for men and 38.4% for women.



Trends in age-standardised net survival by sex: All cancers (ex NMSC) 1994-2013

- Among men five-year survival (ASNS) from cancer (ex NMSC) increased from 36.7% in 1994-1998 to 54.3% in 2009-2013. This difference was statistically significant.
- Among women five-year survival (ASNS) from cancer (ex NMSC) increased from 47.9% in 1994-1998 to 58.5% in 2009-2013. This difference was statistically significant.



1. Five-year survival for 2012-2016 are estimates as not all patients have five years worth of follow up.

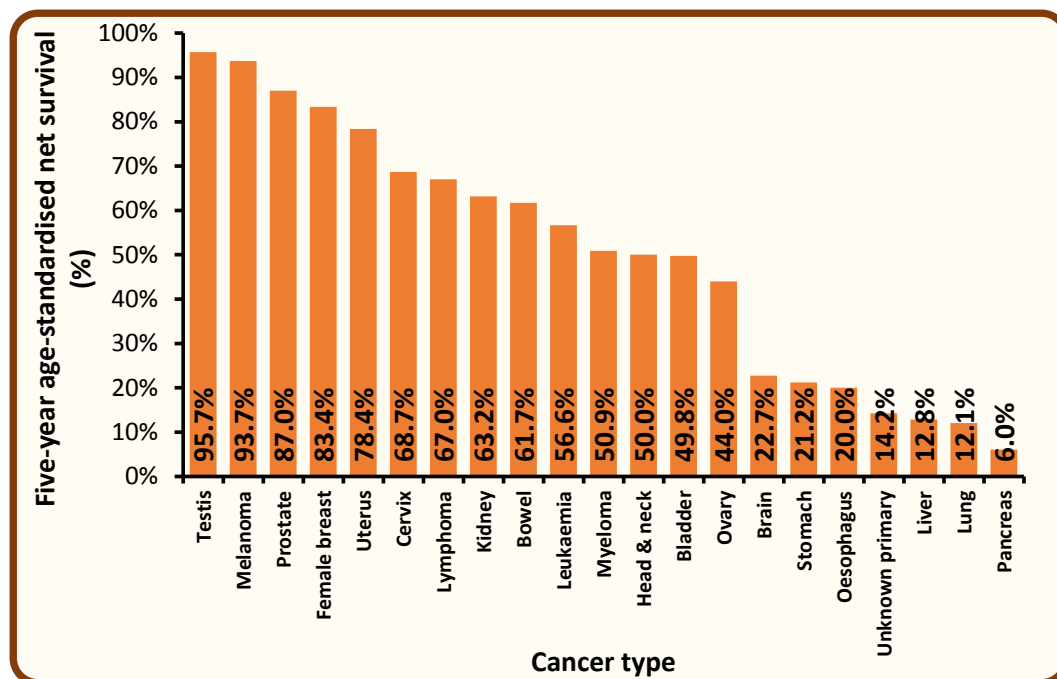
NMSC: Non-melanoma skin cancer, ASNS: Age-standardised net survival

Five-year survival by cancer type: All cancers (ex NMSC) 2009-2013

Five-year survival (ASNS) for patients diagnosed in 2009-2013 ranged 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.
- 87.0% for prostate cancer.



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

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.

Five-year survival (ASNS) did not decrease significantly for any cancer site between 2004-2008 and 2009-2013.

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 (NS)	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, NS: Not standardised due to small number of cases

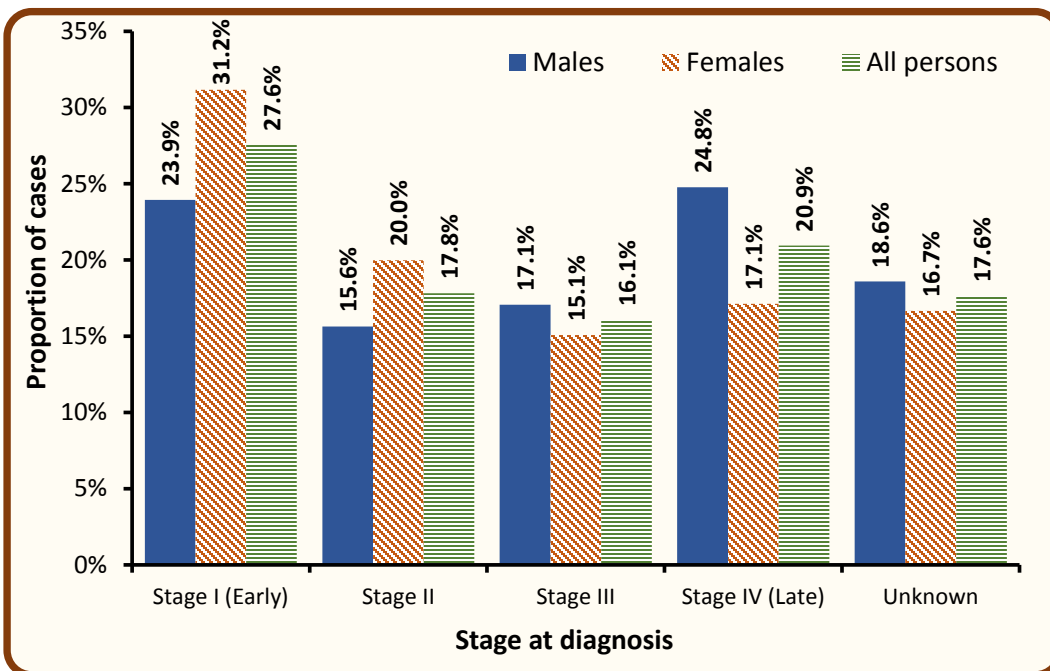
Cancer stage

Incidence by sex and stage at diagnosis: All cancers (ex NMSC) 2013-2017¹

During 2013-2017:

- 82.4% of cases diagnosed had a stage assigned.
- 27.6% of cases were diagnosed at stage I. (33.5% of staged cases)
- 20.9% of cases were diagnosed at stage IV. (25.4% of staged cases)
- Among cases which were staged, 30.4% of male cases were diagnosed at stage IV, compared to 20.5% of female cases.

Stage at diagnosis	Average cases per year		
	Male	Female	Both sexes
Stage I (Early)	1,132	1,478	2,610
Stage II	740	948	1,687
Stage III	807	715	1,521
Stage IV (Late)	1,171	812	1,983
Unknown	879	790	1,669
All stages	4,729	4,742	9,470



Cancer stage describes the size of a cancer and how far it has grown and spread.

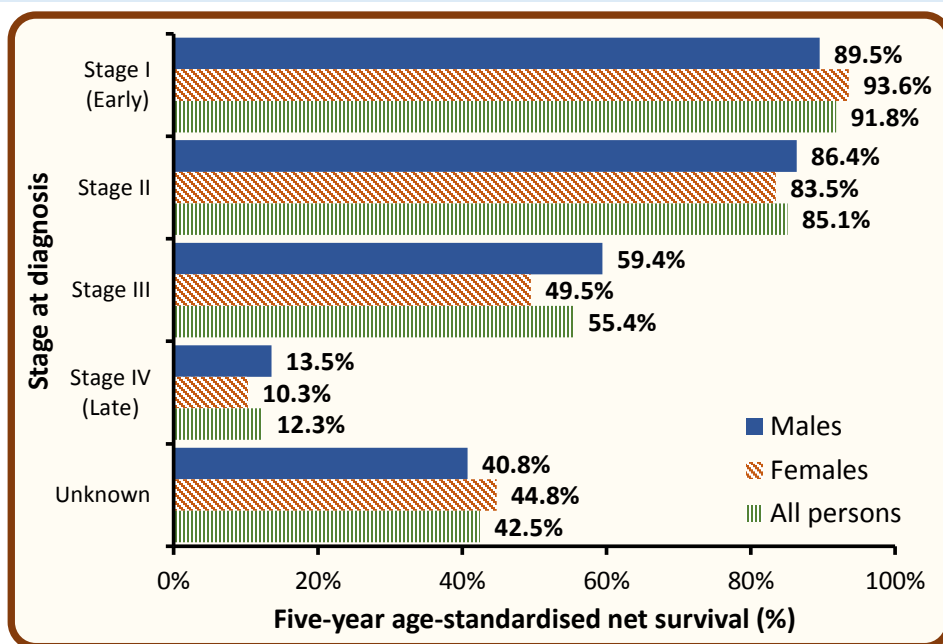
This information is used to help decide what treatments are needed.

The classification used here to stage cancer is the TNM (version 7) classification.

Data on cancer stage in 2018, classified using TNM (version 8), is available online at www.qub.ac.uk/nicr

Survival by sex and stage at diagnosis: All cancers (ex NMSC) 2009-2013

- Stage at diagnosis is one of the most important factors in cancer (ex NMSC) survival with five-year survival decreasing as stage increases.
- Five-year survival (ASNS) ranged from 91.8% for early stage (stage I) disease to 12.3% for late stage (stage IV) disease.
- Five-year survival (ASNS) for unstaged cancer was 42.5%.
- Five-year survival (ASNS) for stage IV cancer was 13.5% for men, compared to 10.3% for women.



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NMSC: Non-melanoma skin cancer, ASNS: Age-standardised net survival

Prevalence

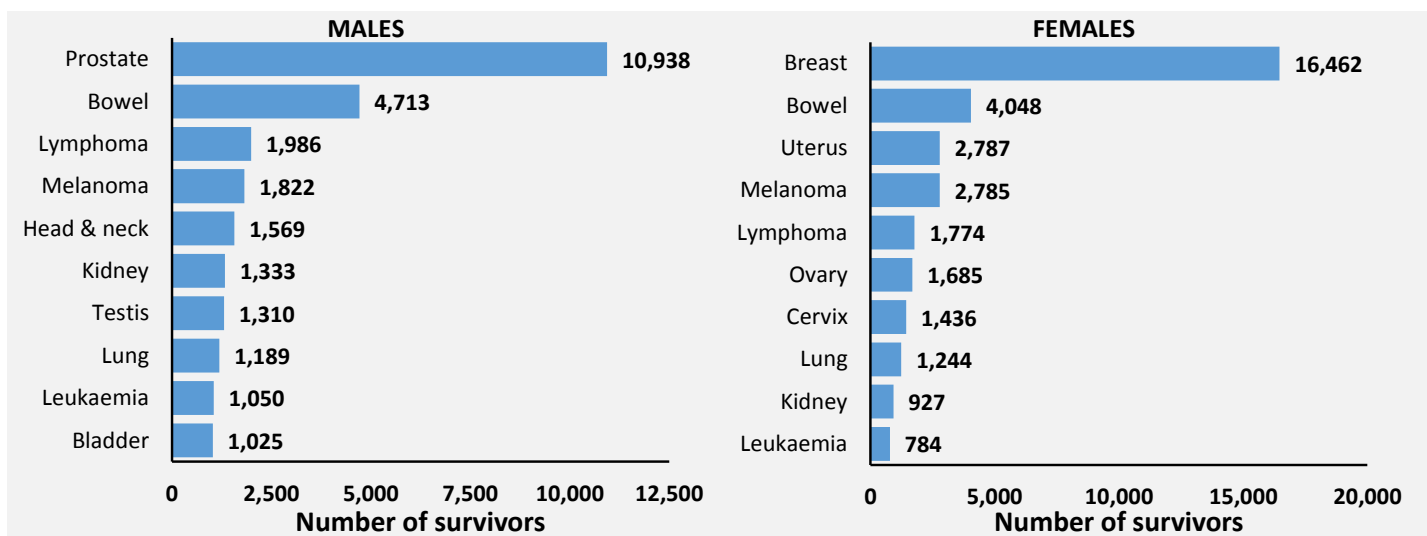
- At the end of 2018, there were 65,722 people (Males: 28,937; Females: 36,785) living with cancer (ex NMSC) who had been diagnosed with the disease during 1994-2018.
- Of these, 44.0% were male, 48.4% were aged 70 and over, and 11.9% had been diagnosed in the previous year.

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).

Time since diagnosis	25-year prevalence								
	Aged 0-69			Aged 70+			All ages		
	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes
0-1 year	1,914	2,391	4,305	1,936	1,606	3,542	3,850	3,997	7,847
1-5 years	4,904	6,636	11,540	5,028	4,220	9,248	9,932	10,856	20,788
5-10 years	3,238	5,377	8,615	4,257	4,004	8,261	7,495	9,381	16,876
10-25 years	3,171	6,253	9,424	4,489	6,298	10,787	7,660	12,551	20,211
0-25 years	13,227	20,657	33,884	15,710	16,128	31,838	28,937	36,785	65,722

25-year prevalence by sex and cancer type: All cancers (ex NMSC) 2018

The most prevalent cancer types among male survivors at the end of 2018 (ex NMSC), were prostate cancer (10,938 survivors) and bowel cancer (4,713 survivors), while the most prevalent cancer types among female survivors were breast cancer (16,462 survivors) and bowel cancer (4,048 survivors).



Mortality

During 2014-2018:

- There were 2,304 male and 2,096 female deaths from cancer (ex NMSC) each year.
- Death from cancer (ex NMSC) made up 30.7% of all male, and 26.3% of all female deaths in Northern Ireland.

Deaths by sex and age at death: All cancers (ex NMSC) 2014-2018¹

During 2014-2018:

- The median age at death was 74 for men and 75 for women.
- Risk of death from cancer (ex NMSC) was strongly related to age, with 78.4% of men and 76.8% of women aged 65 years or more at time of death.
- 4.7% of cancer deaths (ex NMSC) occurred among those aged under 50.

Age at death	Average deaths per year		
	Male	Female	Both sexes
0 - 49	94	113	207
50 - 64	403	375	778
65 - 74	670	531	1,201
75 +	1,136	1,079	2,214
All ages	2,304	2,096	4,400

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NMSC: Non-melanoma skin cancer

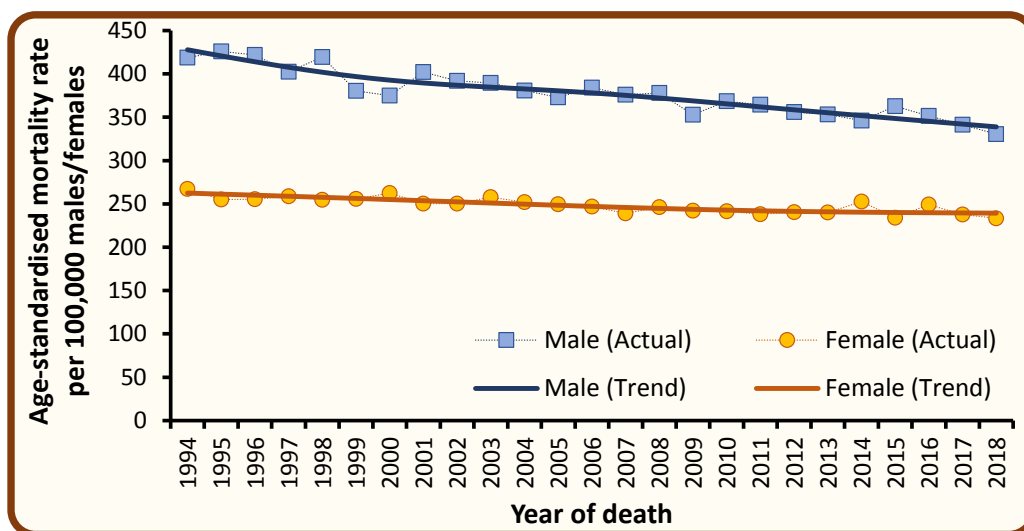
Deaths by sex and year of death: All cancers (ex NMSC) 2009-2018

- Among males the number of deaths from cancer (ex NMSC) increased by 8.8% from an annual average of 2,118 deaths in 2009-2013 to 2,304 deaths in 2014-2018.
- Among females the number of deaths from cancer (ex NMSC) increased by 9.1% from an annual average of 1,921 deaths in 2009-2013 to 2,096 deaths in 2014-2018.

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Male	1,988	2,119	2,136	2,146	2,203	2,202	2,343	2,339	2,337	2,300
Female	1,864	1,903	1,903	1,959	1,978	2,121	2,000	2,162	2,103	2,093
Both sexes	3,852	4,022	4,039	4,105	4,181	4,323	4,343	4,501	4,440	4,393

Trends in age-standardised mortality rates by sex: All cancers (ex NMSC) 1994-2018

- Among males age-standardised mortality rates from cancer (ex NMSC) decreased by 3.6% from 359.1 per 100,000 person years in 2009-2013 to 346.2 deaths per 100,000 persons years in 2014-2018. This difference was not statistically significant.
- Among females age-standardised mortality rates from cancer (ex NMSC) increased by 0.4% from 240.4 per 100,000 person years in 2009-2013 to 241.4 deaths per 100,000 persons years in 2014-2018. This difference was not statistically significant.



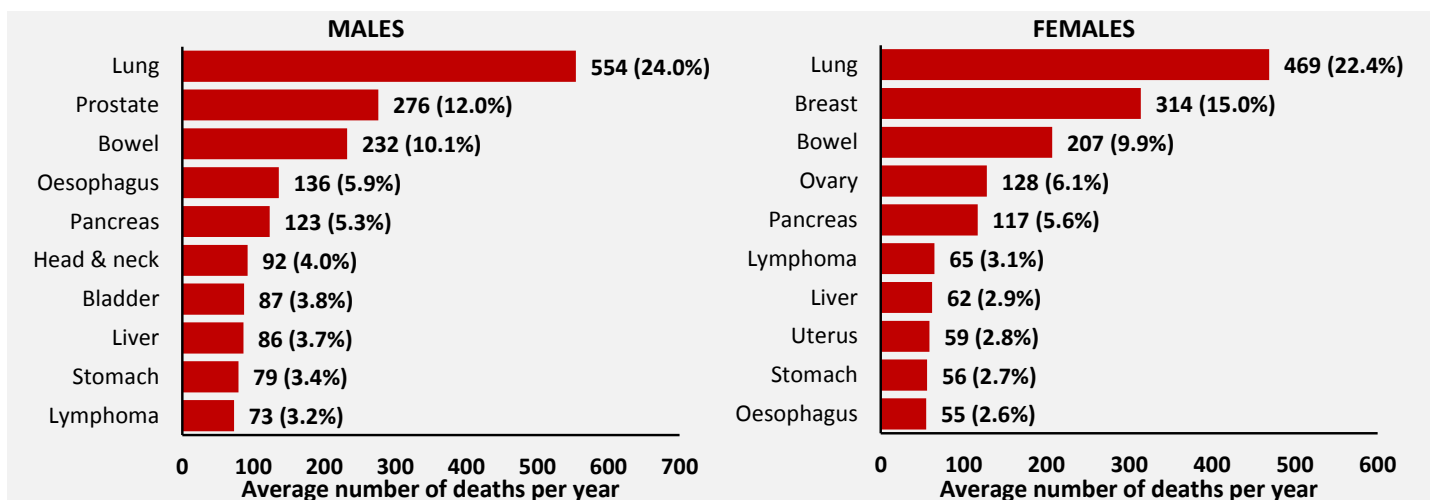
Mortality data are provided by the Northern Ireland General Registrar Office via the Department of Health.

Counts of the number of deaths are based upon the year that death occurred, and upon the primary cause of death only.

Age-standardised mortality rates remove changes over time caused by population growth and/or ageing.

Cancer deaths by sex and cancer type: All cancers (ex NMSC) 2014-2018¹

The most common causes of cancer death (ex NMSC) among men, were lung cancer (24.0%), prostate cancer (12.0%) and bowel cancer (10.1%), while the most common cause of cancer death (ex NMSC) among women were lung cancer (22.4%), breast cancer (15.0%) and bowel cancer (9.9%).



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NMSC: Non-melanoma skin cancer

Background notes

Cancer classification: Classification of tumour sites is carried out using ICD10 codes. For a listing and explanation of ICD10 codes see: World Health Organisation at <http://apps.who.int/classifications/icd10/browse/2010/en#/II>

Population data for Northern Ireland, and smaller geographic areas, are extracted from the NI mid-year population estimates available from the NI Statistics and Research Agency (available at www.nisra.gov.uk).

Geographic areas are assigned based on a patient's postcode of usual residence at diagnosis using the July 2019 Central Postcode Directory (CPD) produced by the NI Statistics and Research Agency (available at www.nisra.gov.uk).

Deprivation quintiles: Super output areas (SOA) are assigned to each patient based on their postcode of usual residence at diagnosis. Using the SOA each patient is assigned a socio-economic deprivation quintile based on the 2017 Multiple Deprivation Measure. The 2017 Multiple Deprivation Measure is available from the NI Statistics and Research Agency (available at www.nisra.gov.uk).

A **crude incidence/mortality rate** is the number of cases/deaths per 100,000 person years in the population. Person years are the sum of the population over the number of diagnosis included.

An **age-standardised incidence/mortality rate** per 100,000 person years is an estimate of the incidence/mortality rate if that population had a standard age structure. Throughout this report the 2013 European Standard Population has been used. Standardising to a common Standard Population allows comparisons of incidence/mortality rates to be made between different time periods and geographic areas while removing the effects of population change and ageing.

A **Standardised Incidence/Mortality Ratio (SIR/SMR)** is the ratio of the number of cases/deaths observed in a population to the expected number of cases/deaths, based upon the age-specific rates in a reference population. This statistic is often used to compare incidence/mortality rates for geographic areas (e.g. Trusts) to the national incidence/mortality rates (i.e. Northern Ireland). An SIR/SMR of 100 indicates there is no difference between the geographic area and the national average.

Confidence intervals are a measure of the precision of a statistic (e.g. lung cancer incidence rate). Typically, when numbers are low, precision is poorer and confidence intervals will be wider. As a general rule, when comparing statistics (e.g. cervical cancer incidence rate in year 2012 vs year 2013), if the confidence interval around one statistic overlaps with the interval around another, it is unlikely that there is any real difference between the two. If there is no overlap, the difference is considered to be **statistically significant**.

Lifetime risk is estimated as the cumulative risk of getting cancer up to age 75/85, calculated directly from the age-specific incidence rates. The odds of developing the disease before age 75/85 is the inverse of the cumulative risk.

Prevalence is the number of cancer patients who are alive in the population on a specific date (31st December 2018 in this report). Since data from the NI Cancer Registry are only available since 1993, prevalence only refers to a fixed term (10 and 25 years in this report). There may be members of the population living with a diagnosis of cancer for more than 25 years.

Observed survival refers to the proportion of patients who survive a specified amount of time from their date of diagnosis. Observed survival considers death from any cause and is not adjusted for the age of the patient. Cause of death may be unrelated to the cancer the patient has been diagnosed with.

Net Survival is an estimate of survival where the effect on survival of background population mortality rates has been removed. It represents the [theoretical] survival of cancer patients if they could only die from cancer-related causes. Age-standardised net survival estimates are the estimates that would occur if that population of cancer patients had a standard population age structure. The age groups and weights used here are those used by international studies such as EURO CARE, an international study group that compares cancer survival among European countries. However, due to the small number of patients in NI, the first two age categories in the standard population are combined.

Mortality: Information relating to cancer mortality is sourced from the General Registrar Office (GRONI) via the Department of Health (NI) and is based upon the date on which death occurs. Results may differ slightly than those produced by the Northern Ireland Statistics and Research Agency (NISRA), which produces deaths data based upon the date on which the death is registered with GRONI.

Further Information

Further data is available from the Northern Ireland Cancer Registry web site: www.qub.ac.uk/nicr

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