All cancers

(excluding non-melanoma skin cancer)

Patients diagnosed 1993-2019

(ICD10: C00-C43, C45-C97)

Further information

Further data is available at: **www.qub.ac.uk/research-centres/nicr**

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Acknowledgements

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The incidence, prevalence and survival statistics in this publication are designated as official statistics signifying that they comply with the Code of Practice for Official Statistics.

Incidence

During 2015-2019:

▪ There were 4,952 male and 4,909 female cases of cancer (ex NMSC) diagnosed each year.

▪ Cancer (ex NMSC) made up 68.3% of all male cancers, and 74.7% of all female cancers.

▪ The risk of developing cancer (ex NMSC) before the age of 75 was 1 in 3.4 for men and 1 in 3.7 for women, while before the age of 85 the risk was 1 in 2.1 for men and 1 in 2.5 for women.

Incidence by age at diagnosis - *All cancers (ex NMSC), Cases in 2015-2019*

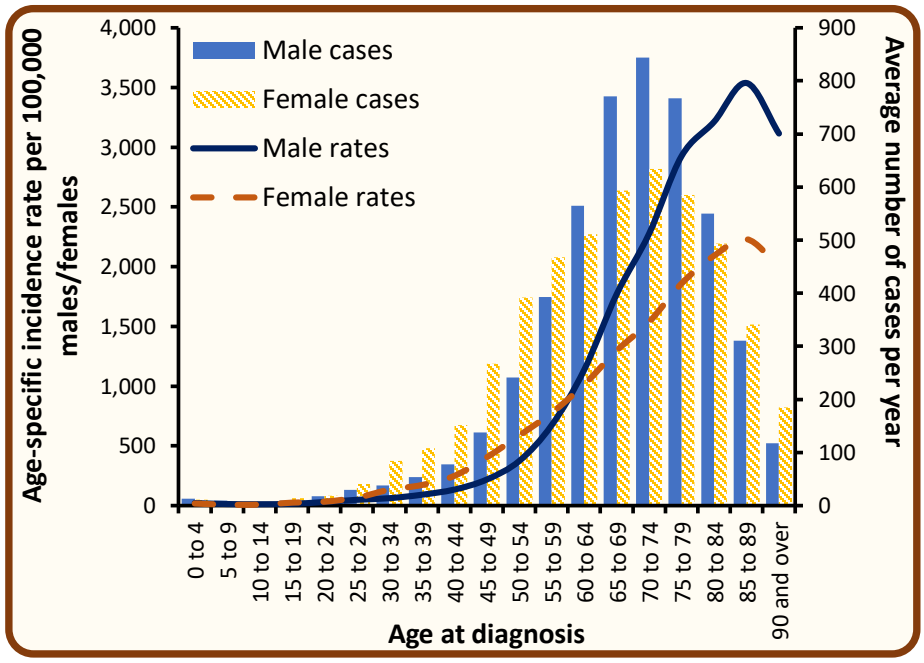
During 2015-2019:

▪ The median age at diagnosis was 70 for men and 68 for women.

▪ Cancer risk increased with age, with 35.2% of men and 32.7% of women aged 75 years or more at diagnosis.

▪ 17.6% of cases were diagnosed among those aged under 54.

Age at diagnosis	Average cases per year		
	Male	Female	Both sexes
0 - 54	635	1,098	1,731
55 - 64	958	979	1,938
65 - 74	1,615	1,227	2,842
75 +	1,745	1,605	3,350
All ages	4,952	4,909	9,861

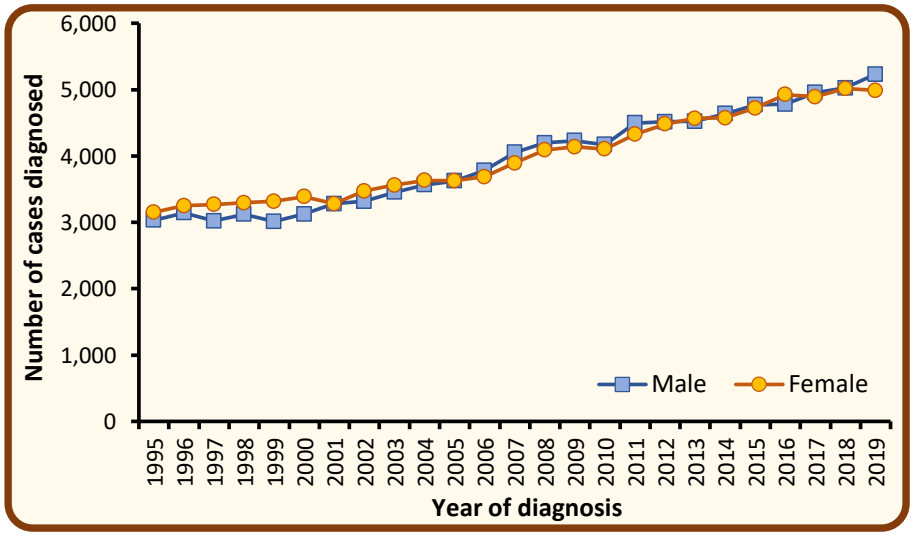


Incidence by year of diagnosis - *All cancers (ex NMSC), Cases in 1995-2019*

▪ Among males the number of cases of cancer (ex NMSC) increased by 10.8% from an annual average of 4,468 cases in 2010-2014 to 4,952 cases in 2015-2019.

▪ Among females the number of cases of cancer (ex NMSC) increased by 11.3% from an annual average of 4,410 cases in 2010-2014 to 4,909 cases in 2015-2019.

Year of diagnosis	Male	Female	Both sexes
2010	4,170	4,105	8,275
2011	4,495	4,326	8,821
2012	4,515	4,481	8,996
2013	4,521	4,565	9,086
2014	4,637	4,572	9,209
2015	4,770	4,723	9,493
2016	4,782	4,926	9,708
2017	4,955	4,893	9,848
2018	5,023	5,016	10,039
2019	5,232	4,987	10,219

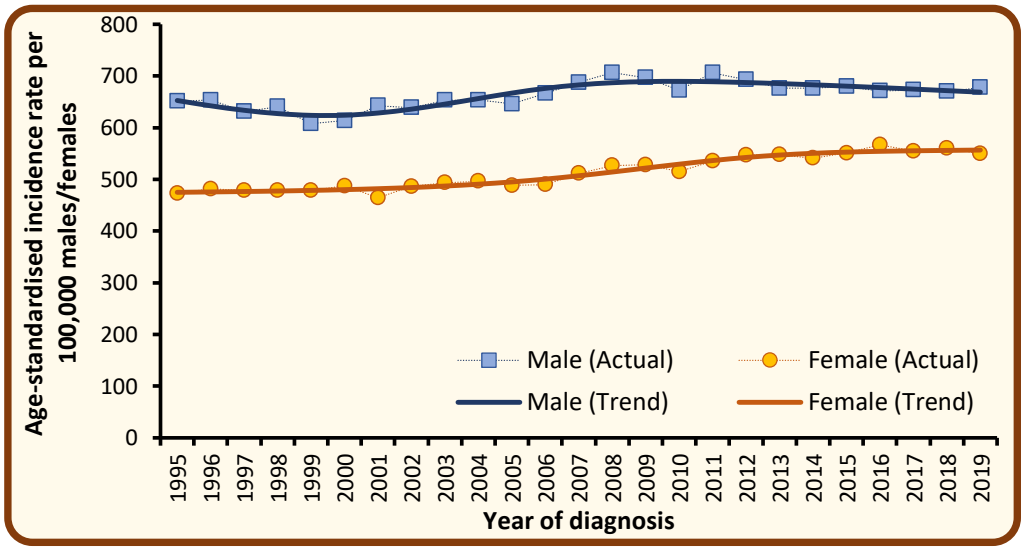


Note: Annual averages have been rounded to the nearest integer. Sums of numbers in table rows or columns may thus differ slightly from the given total.
NMSC: Non-melanoma skin cancer

Trends in age-standardised incidence rates - *All cancers (ex NMSC), Cases in 1995-2019*

▪ Among males age-standardised incidence rates of cancer (ex NMSC) decreased by 1.5% from 684.6 per 100,000 person years in 2010-2014 to 674.1 cases per 100,000 persons years in 2015-2019. This difference was not statistically significant.

▪ Among females age-standardised incidence rates of cancer (ex NMSC) increased by 3.5% from 537.4 per 100,000 person years in 2010-2014 to 556.3 cases per 100,000 persons years in 2015-2019. 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.

Trends can also be influenced by changes in how cancer is classified and coded. (e.g. the move from ICD-0-2 to ICD-0-3 in 2019).

Trends in age-standardised incidence rates by age - *All cancers (ex NMSC), Cases in 1995-2019*

For the total number of cases recorded, between 2010-2014 and 2015-2019 there was:

▪ an increase of 5.3% among males aged 0 to 64, an increase of 13.3% among males aged 65 to 74 and an increase of 14.2% among males aged 75 and over.

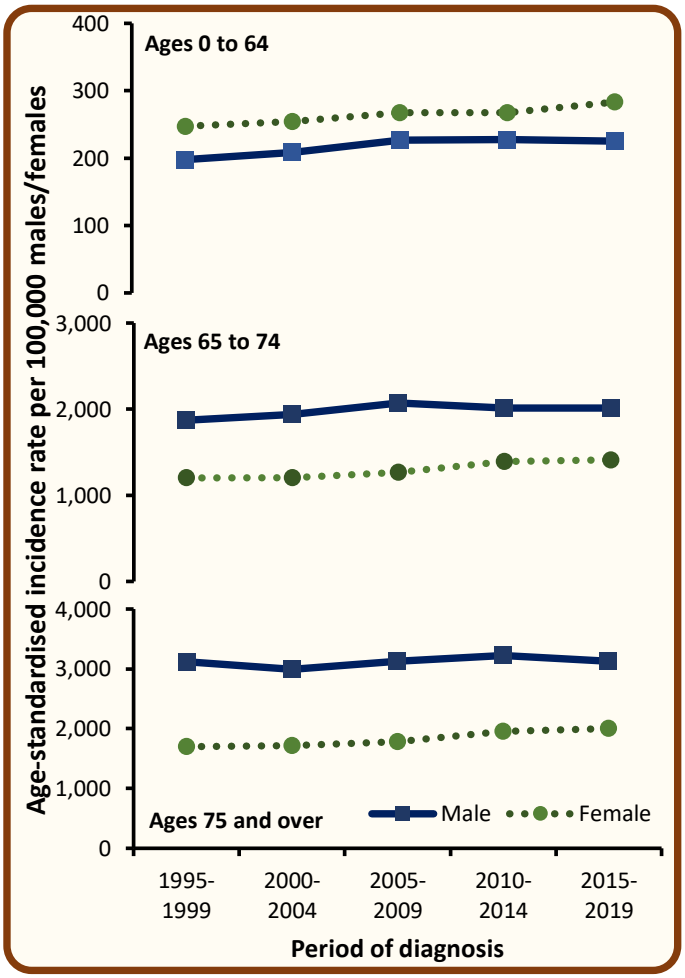
▪ an increase of 11.9% among females aged 0 to 64, an increase of 12.0% among females aged 65 to 74 and an increase of 10.1% among females aged 75 and over.

Age group	Average cases per year			
	2010-2014		2015-2019	
	Male	Female	Male	Female
0 to 64	1,513	1,856	1,593	2,076
65 to 74	1,426	1,096	1,615	1,228
75 and over	1,528	1,458	1,745	1,605
All ages	4,468	4,410	4,952	4,909

For age-standardised incidence rates, between 2010-2014 and 2015-2019 there was:

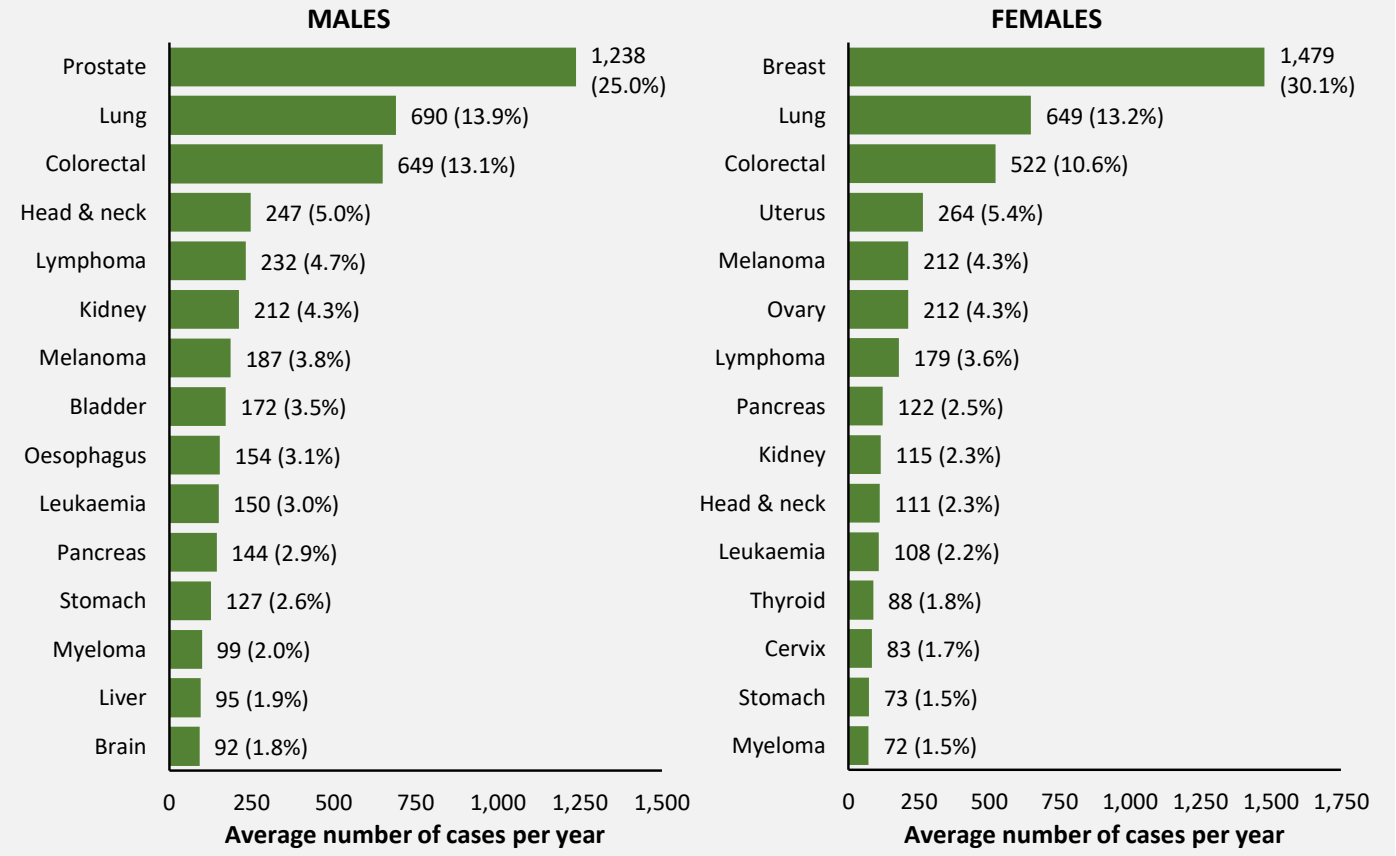
▪ no significant change among males aged 0 to 64, no significant change among males aged 65 to 74 and no significant change among males aged 75 and over.

▪ an increase of 5.8% among females aged 0 to 64, no significant change among females aged 65 to 74 and no significant change among females aged 75 and over.



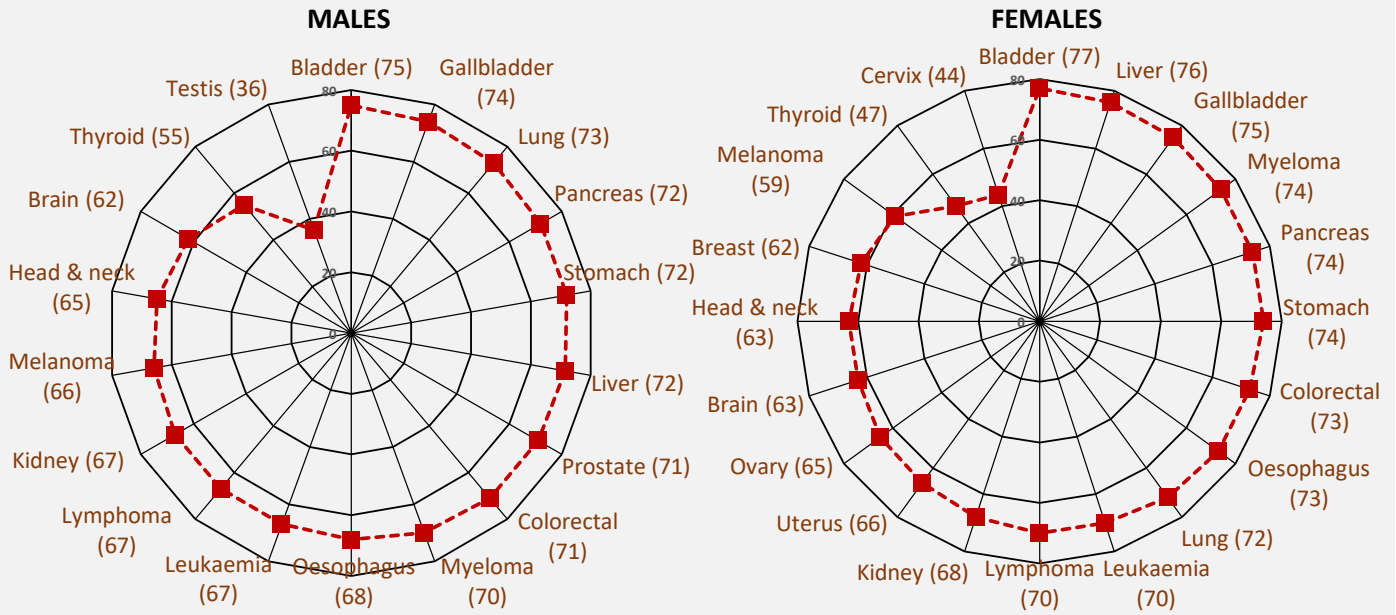
Incidence by cancer type - *All cancers (ex NMSC), Cases in 2015-2019*

The most common cancer types among men (excluding NMSC), were prostate cancer (25.0%), lung cancer (13.9%) and colorectal cancer (13.1%), while the most common cancer types among women (excluding NMSC) were breast cancer (30.1%), lung cancer (13.2%) and colorectal cancer (10.6%).



Median age at diagnosis by cancer type - *All cancers (ex NMSC), Cases in 2015-2019*

The median age at diagnosis for most cancer types during 2015-2019 was 60 years or more. Exceptions include testicular cancer (36) and thyroid cancer (55) among males, and cervical cancer (44), thyroid cancer (47) and melanoma (59) among females.



Incidence by deprivation quintile - *All cancers (ex NMSC), Cases in 2015-2019*

The annual number of cases during 2015-2019 varied in each deprivation quintile due to variations in population size and age.

After accounting for these factors, incidence rates:

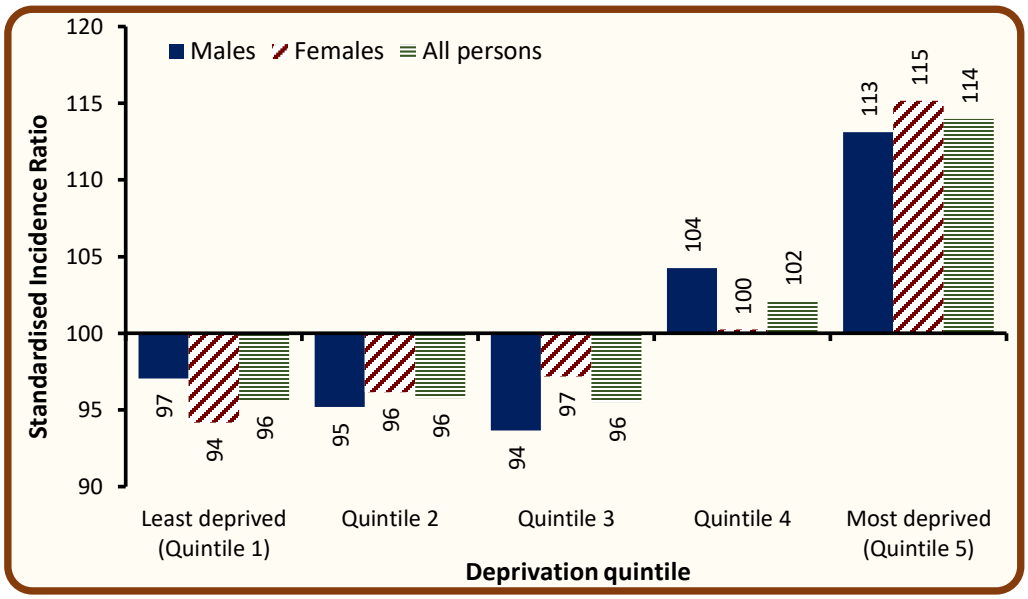
- in the most socio-economically deprived areas were 14.0% higher than the NI average.
- in the least socio-economically deprived areas were 4.4% lower than the NI average.

Deprivation quintile	Average cases per year		
	Male	Female	Both sexes
Least deprived (Quintile 1)	1,012	981	1,993
Quintile 2	1,007	991	1,998
Quintile 3	989	989	1,978
Quintile 4	1,031	989	2,020
Most deprived (Quintile 5)	914	958	1,871
Northern Ireland	4,952	4,909	9,861

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 cancer type and deprivation quintile - *All cancers (ex NMSC), Cases in 2015-2019*

While cancer incidence is higher in the most deprived communities overall, the relationship between cancer and socio-economic deprivation varies by cancer site. During 2015-2019:

- Incidence of head and neck cancer, oesophageal cancer, stomach cancer (male only), colorectal cancer (male only), liver cancer, gallbladder cancer, pancreatic cancer (male only), 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 and prostate cancer 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
▪ Head and neck cancer	▪ Melanoma	▪ Breast cancer
▪ Oesophageal cancer	▪ Prostate cancer	▪ Uterine cancer
▪ Stomach cancer (male only)		▪ Ovarian cancer (inc. fallopian tube)
▪ Colorectal cancer (male only)		▪ Testicular cancer
▪ Liver cancer		▪ Bladder cancer
▪ Gallbladder cancer		▪ Brain cancer (inc. CNS)
▪ Pancreatic cancer (male only)		▪ Thyroid cancer
▪ Lung cancer		▪ Lymphoma
▪ Cervical cancer		▪ Myeloma (inc. plasma cell)
▪ Kidney cancer (female only)		▪ Leukaemia
▪ Unknown primary cancer (female only)		

Note. These cancers can still vary in other ways by deprivation quintile (e.g. by being higher than average in the middle deprivation quintile).

CNS: Central Nervous System

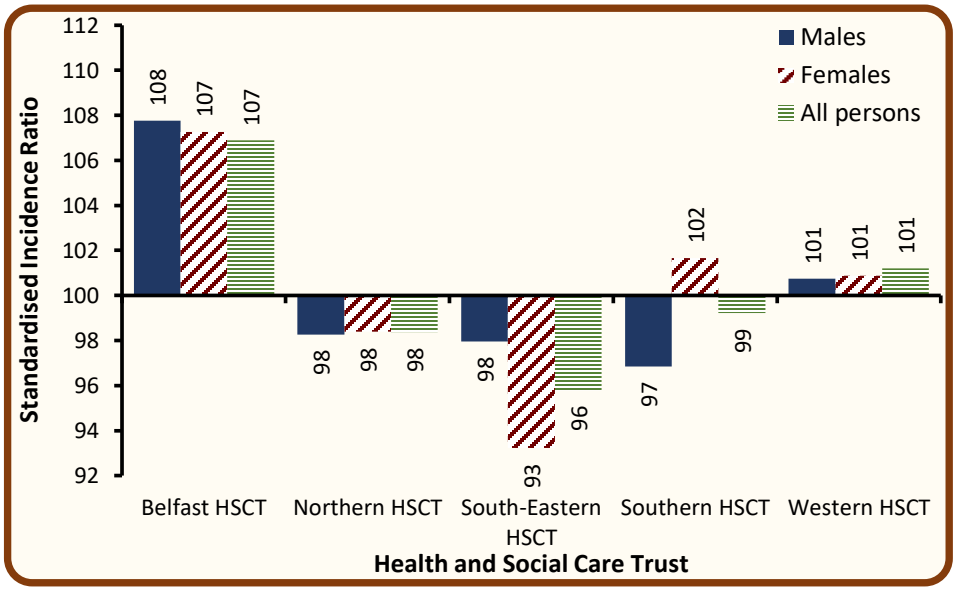
Incidence by Health and Social Care Trust (HSCT) - *All cancers (ex NMSC), Cases in 2015-2019*

The annual number of cases during 2015-2019 varied in each HSCT due to variations in population size and age.

After accounting for these factors, incidence rates:

- 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	934	1,000	1,934
Northern HSCT	1,299	1,273	2,572
South-Eastern HSCT	1,020	953	1,972
Southern HSCT	903	928	1,831
Western HSCT	795	756	1,551
Northern Ireland	4,952	4,909	9,861



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 NI average.

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

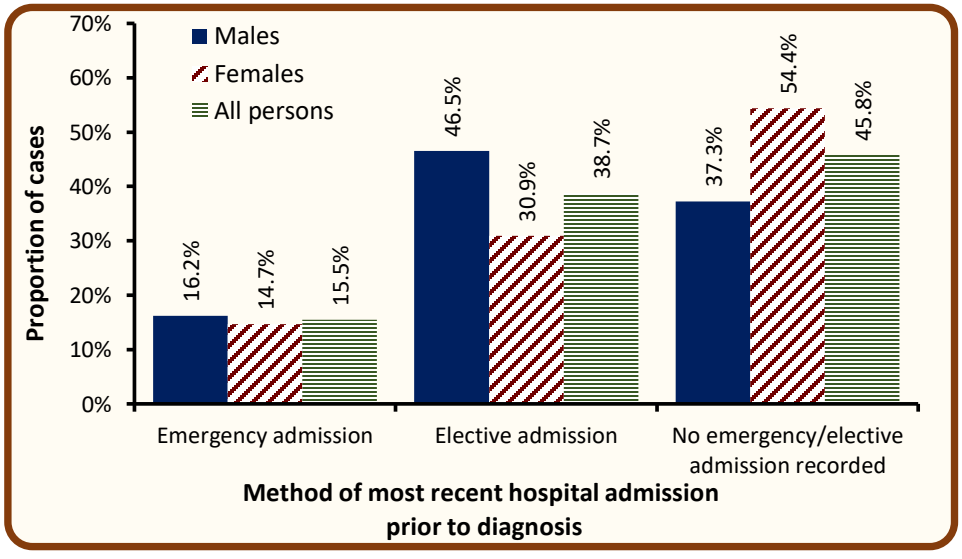
Data for Local Government Districts and Parliamentary Constituencies are available at www.qub.ac.uk/research-centres/nicr

Incidence by method of most recent admission to hospital - *All cancers (ex NMSC), Cases in 2015-2019*

During 2015-2019:

- 15.5% of cases had an emergency admission to hospital recorded within 30 days prior to their cancer diagnosis.
- 16.2% of male cases had an emergency admission up to 30 days prior to diagnosis, compared to 14.7% of female cases.

Method of admission	Average cases per year		
	Male	Female	Both sexes
Emergency admission	804	722	1,526
Elective admission	2,303	1,518	3,821
No emergency/elective admission recorded	1,845	2,669	4,514
Total	4,952	4,909	9,861



Admission method refers to the most recent hospital inpatient admission that a patient had prior to cancer diagnosis, regardless of reason for the admission.

Admissions are considered up to a maximum of 30 days prior to diagnosis. Admissions up to two days post diagnosis are also considered to allow for a reasonable margin or error in data recording.

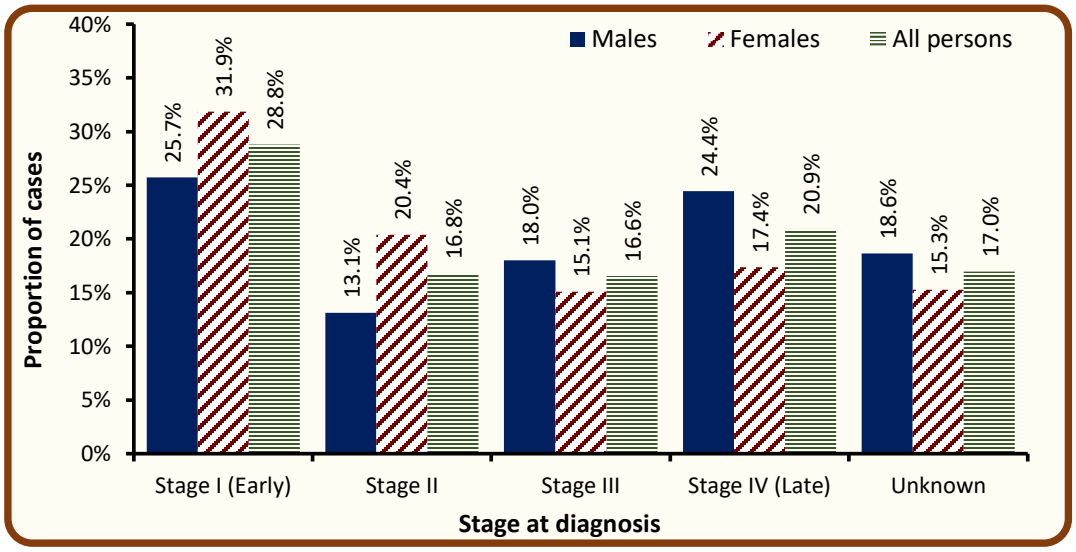
The majority of patients with no inpatient admission recorded prior to diagnosis are likely to have been diagnosed via an outpatient route.

Incidence by stage at diagnosis - *All cancers (ex NMSC), Cases in 2015-2019*

During 2015-2019:

- 83.0% of cases diagnosed had a stage assigned.
- 28.8% of cases were diagnosed at stage I. (34.7% of staged cases)
- 20.9% of cases were diagnosed at stage IV. (25.2% of staged cases)
- Among cases which were staged, 30.1% 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)	1,275	1,565	2,840
Stage II	651	1,002	1,652
Stage III	892	740	1,632
Stage IV (Late)	1,211	853	2,064
Unknown	923	750	1,673
All stages	4,952	4,909	9,861



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.

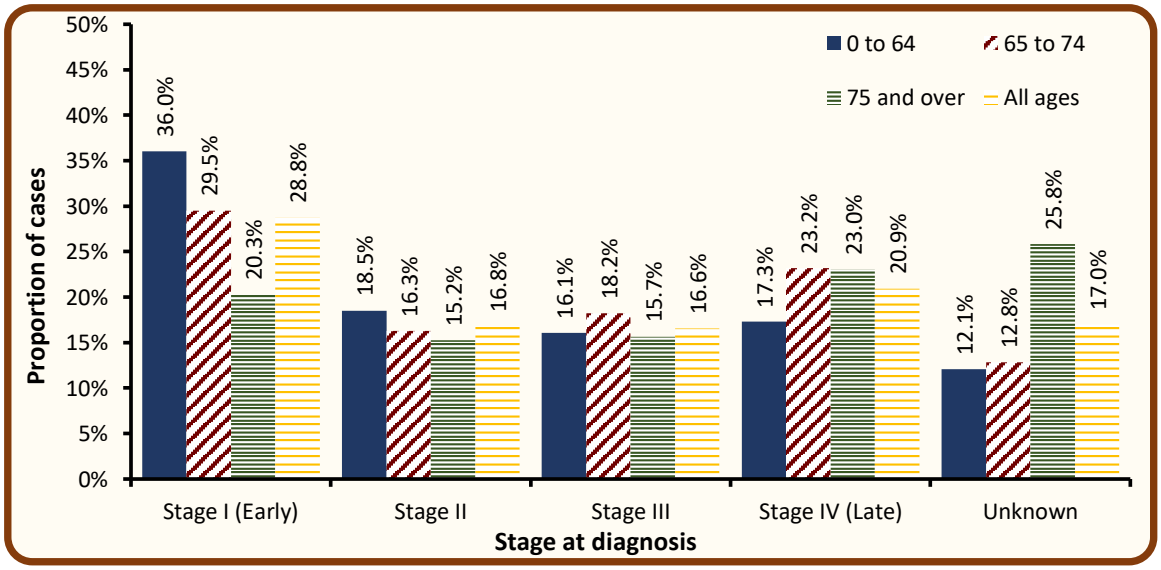
The classification used here to stage cancer is the TNM classification (Version 7 prior to 2018, Version 8 from 2018 onwards).

Incidence by age and stage at diagnosis - *All cancers (ex NMSC), Cases in 2015-2019*

During 2015-2019:

- 25.8% of cases among those aged 75 and over did not have a stage assigned at diagnosis, compared to 12.1% of cases among those aged 0 to 64.
- Among cases which were staged, 31.0% of cases among those aged 75 and over were diagnosed at stage IV, compared to 19.7% of cases among those aged 0 to 64.

Stage at diagnosis	Average cases per year			
	0 to 64	65 to 74	75 and over	All ages
Stage I (Early)	1,322	838	679	2,840
Stage II	679	463	510	1,652
Stage III	589	518	525	1,632
Stage IV (Late)	634	658	771	2,064
Unknown	444	365	865	1,673
All stages	3,669	2,842	3,350	9,861



Survival

▪ 70.3% of patients were alive one year and 49.4% were alive five years from a cancer (ex NMSC) diagnosis in 2010-2014. (observed survival)

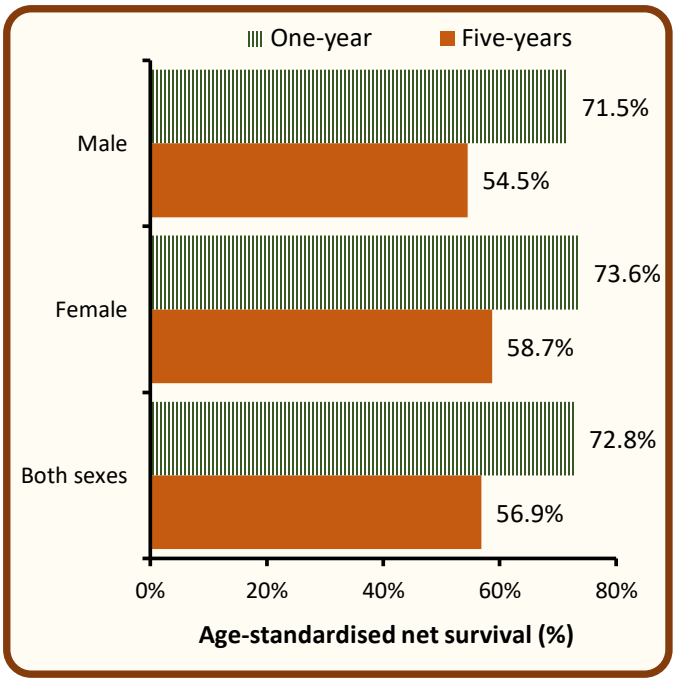
▪ Age-standardised net survival (ASNS), which removes the effect of deaths from causes unrelated to cancer, was 72.8% one year and 56.9% five years from a cancer (ex NMSC) diagnosis in 2010-2014.

▪ Five-year survival (ASNS) for patients diagnosed with cancer (ex NMSC) in 2010-2014 was 54.5% among men and 58.7% among women.

Gender	Observed survival		Age-standardised net survival	
	One-year	Five-years	One-year	Five-years
Male	68.3%	45.5%	71.5%	54.5%
Female	72.2%	53.3%	73.6%	58.7%
Both sexes	70.3%	49.4%	72.8%	56.9%

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.

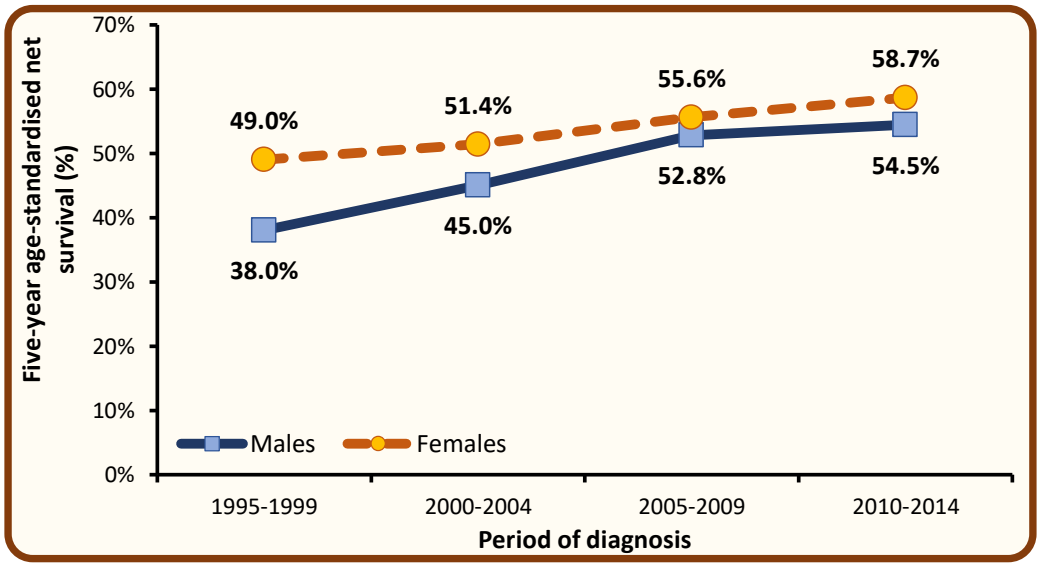
Age-standardised net survival is the proportion of patients who would survive if the patient could not die from causes unrelated to their cancer. This measure is more typically used in studies of cancer survival.



Trends in survival - *All cancers (ex NMSC), Patients diagnosed in 1995-2014*

▪ Among men five-year survival (ASNS) from cancer (ex NMSC) increased from 52.8% in 2005-2009 to 54.5% in 2010-2014. This difference was not statistically significant.

▪ Among women five-year survival (ASNS) from cancer (ex NMSC) increased from 55.6% in 2005-2009 to 58.7% in 2010-2014. This difference was statistically significant.



Estimates of survival in more recent periods - *All cancers (ex NMSC), Patients diagnosed in 2013-2017*

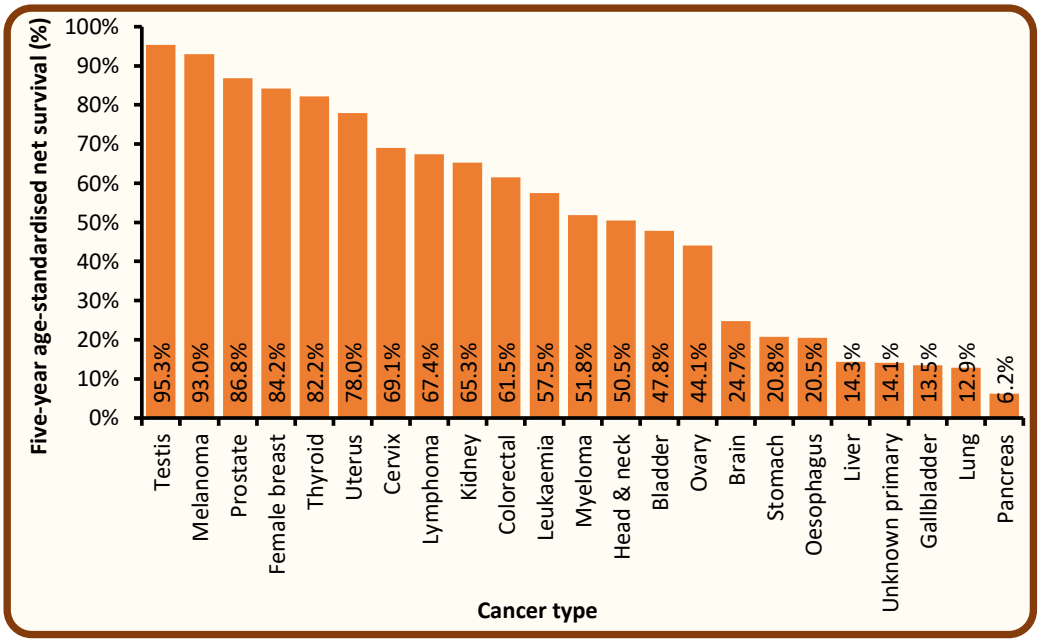
▪ Estimates for survival (ASNS) of patients diagnosed during 2013-2017 are 73.8% one year, and 57.6% five years from diagnosis.

Period of diagnosis	Gender	Observed survival		Age-standardised net survival	
		One-year	Five-years	One-year	Five-years
2012-2017 estimates	Male	69.6%	46.7%	72.9%	55.7%
	Female	72.8%	53.5%	74.2%	58.8%
	Both sexes	71.2%	50.1%	73.8%	57.6%

Note that the five-year survival data for 2013-2017 are estimates only as not all of the patients diagnosed within this period have five years worth of follow up.
ASNS: Age-standardised net survival

Survival by cancer type - *All cancers (ex NMSC), Patients diagnosed in 2010-2014*

- Five-year survival (ASNS) for patients diagnosed in 2010-2014 ranged from 95.3% for testicular cancer to 6.2% for pancreatic cancer.
- In particular five-year survival (ASNS) for the most common cancer types was 84.2% for female breast cancer, 61.5% for colorectal cancer, 12.9% for lung cancer and 86.8% for prostate cancer.



Trends in survival by cancer type - *All cancers (ex NMSC), Patients diagnosed in 2005-2014*

- Five-year survival (ASNS) showed significant improvement between 2005-2009 and 2010-2014 for colorectal cancer among males and for all cancers (ex NMSC), lung cancer and kidney cancer among females.
- Five-year survival (ASNS) did not decrease significantly for any cancer site between 2005-2009 and 2010-2014.

Cancer type	Five-year age-standardised net survival			
	Male		Female	
	2005-2009	2010-2014	2005-2009	2010-2014
All cancers (ex NMSC)	**52.8%**	**54.5%**	**55.6%**	**58.7%***
Head and neck cancer	55.2%	50.2%	55.2%	52.0%
Oesophageal cancer	17.4%	19.1%	17.3%	24.2%
Stomach cancer	17.3%	20.3%	22.2%	21.7%
Colorectal cancer	55.5%	61.4%*	57.1%	61.7%
Liver cancer	5.5%	14.1%	8.6%	15.5%
Gallbladder cancer	10.0%	13.1%	12.5%	13.8%
Pancreatic cancer	5.2%	5.6%	5.0%	7.0%
Lung cancer	9.7%	11.4%	11.2%	14.7%*
Melanoma	87.7%	90.1%	92.6%	95.2%
Breast cancer			80.7%	84.2%
Cervical cancer			63.0%	69.1%
Uterine cancer			77.0%	78.0%
Ovarian cancer (inc. fallopian tube)			39.7%	44.1%
Prostate cancer	88.9%	86.8%		
Testicular cancer	98.4%	95.3%		
Kidney cancer	57.5%	62.4%	54.3%	69.3%*
Bladder cancer	59.0%	52.1%	46.8%	37.1%
Brain cancer (inc. CNS)	24.7%	20.8%	25.4%	31.4%
Thyroid cancer	74.6%	82.2%	83.8%	82.1%
Lymphoma	61.7%	65.1%	66.4%	70.2%
Myeloma (inc. plasma cell)	49.4%	50.4%	53.3%	53.8%
Leukaemia	54.8%	55.6%	52.3%	60.0%
Unknown primary cancer	9.7%	14.4%	9.6%	13.8%

** Represents a statistically significant change over time.* *CNS: Central Nervous System*

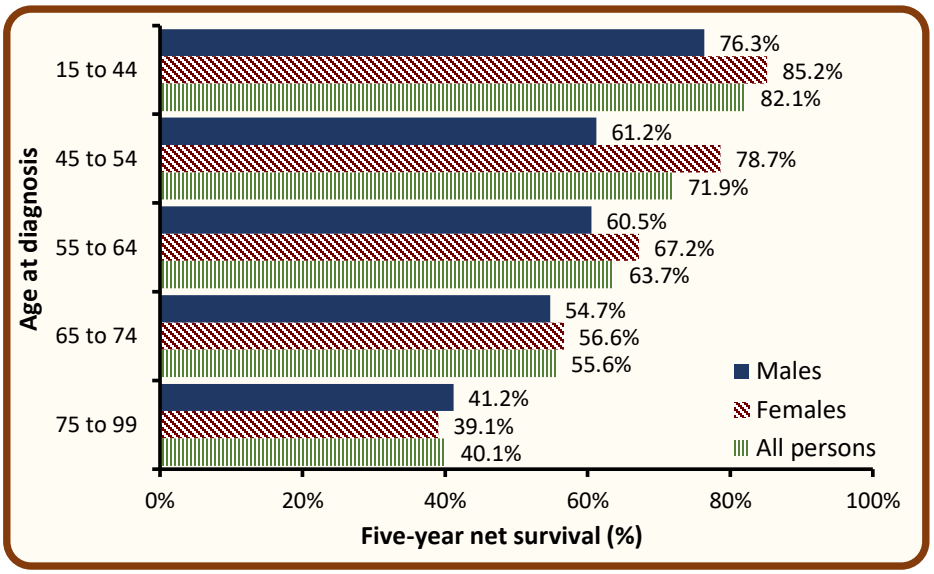
Note- Survival estimates for testicular cancer are unstandardised due to the small number of patients in the older age groups.

Survival by age at diagnosis - *All cancers (ex NMSC), Patients diagnosed in 2010-2014*

▪ Survival from cancer (ex NMSC) among patients diagnosed in 2010-2014 was strongly related to patient age with five-year survival decreasing as age increases.

▪ Five-year net survival ranged from 82.1% among patients aged 15-44 at diagnosis to 40.1% among those aged 75 and over.

▪ Five-year net survival among patients aged 75 and over was 41.2% for men and 39.1% for women.



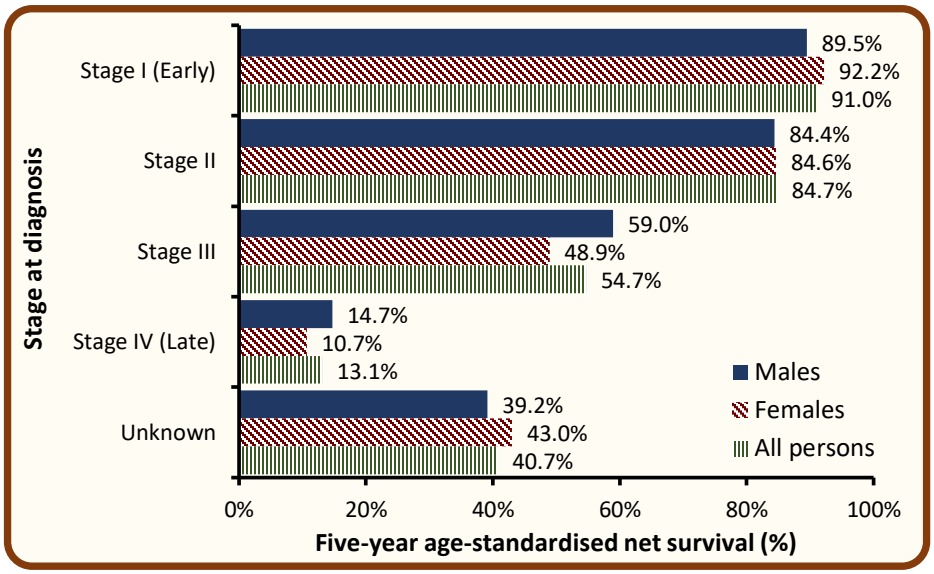
Survival by stage at diagnosis - *All cancers (ex NMSC), Patients diagnosed in 2010-2014*

▪ 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 91.0% for early stage (stage I) disease to 13.1% for late stage (stage IV) disease.

▪ Five-year survival (ASNS) for unstaged cancer was 40.7%.

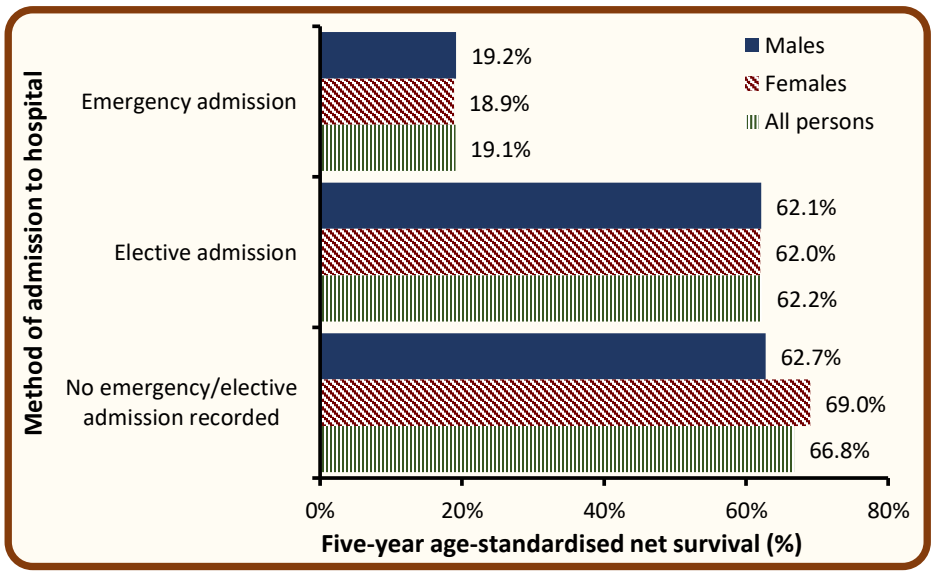
▪ Five-year survival (ASNS) for stage IV cancer was 14.7% for men, compared to 10.7% for women.



Survival by method of most recent admission to hospital - *All cancers (ex NMSC), Patients diagnosed in 2010-2014*

▪ Five-year survival (ASNS) among patients who had an emergency admission to hospital within 30 days prior to their cancer diagnosis was 19.1% compared to 62.2% among those with elective admissions and 66.8% among those who had neither type of hospital admission recorded within 30 days prior to diagnosis.

▪ Five-year survival (ASNS) among patients who had an emergency admission to hospital within 30 days prior to their cancer diagnosis was 19.2% for men, compared to 18.9% for women.



Prevalence

▪ At the end of 2019, there were 68,361 people (Males: 30,387; Females: 37,974) living with cancer (ex NMSC) who had been diagnosed with the disease during 1995-2019.

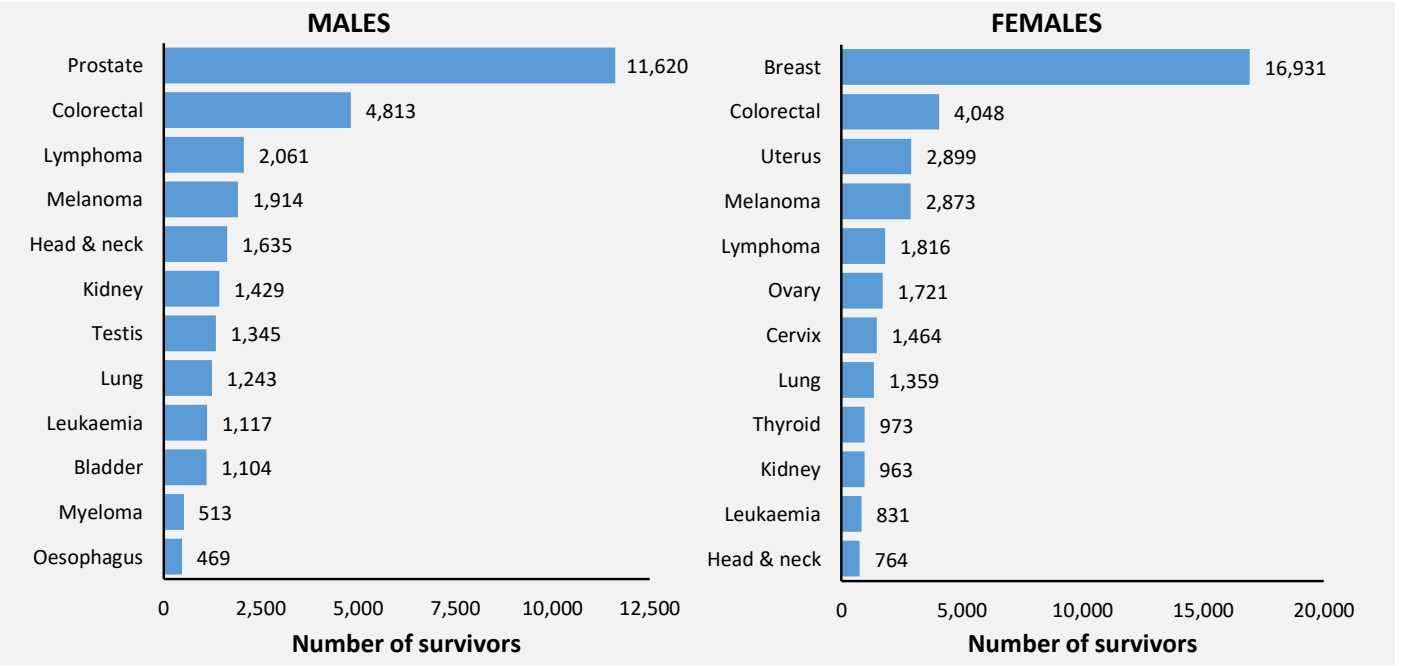
▪ Of these, 44.5% were male, 33.7% were aged 75 and over, and 11.9% had been diagnosed in the previous year.

25-year prevalence refers to the number of cancer survivors who were alive at the end of 2019, and had been diagnosed with their cancer in the previous 25 years (i.e. 1995-2019).

Time since diagnosis	25-year prevalence								
	Aged 0 to 74			Aged 75 and over			All ages		
	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes
0-1 year	2,834	2,912	5,746	1,307	1,092	2,399	4,141	4,004	8,145
1-5 years	6,740	8,337	15,077	3,537	2,910	6,447	10,277	11,247	21,524
5-10 years	4,750	6,685	11,435	2,943	2,855	5,798	7,693	9,540	17,233
10-25 years	4,563	8,514	13,077	3,713	4,669	8,382	8,276	13,183	21,459
0-25 years	18,887	26,448	45,335	11,500	11,526	23,026	30,387	37,974	68,361

25-year prevalence by cancer type - *All cancers (ex NMSC), Patients alive at end of 2019*

The most prevalent cancer types among male survivors at the end of 2019 (ex NMSC), were prostate cancer (11,620 survivors) and colorectal cancer (4,813 survivors), while the most prevalent cancer types among female survivors were breast cancer (16,931 survivors) and colorectal cancer (4,048 survivors).



Trends in 10-year prevalence - *All cancers (ex NMSC), Patients alive at end of each year from 2010-2019*

▪ Among males the number of survivors from cancer (ex NMSC) who had been diagnosed within the previous five years increased by 15.5% from 19,147 survivors in 2014 to 22,111 survivors in 2019.

▪ Among females the number of survivors from cancer (ex NMSC) who had been diagnosed within the previous five years increased by 14.9% from 21,576 survivors in 2014 to 24,791 survivors in 2019.

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Male	16,083	17,022	17,860	18,510	19,147	19,728	20,304	20,793	21,431	22,111
Female	18,798	19,552	20,323	21,059	21,576	22,373	23,086	23,648	24,300	24,791
Both sexes	34,881	36,574	38,183	39,569	40,723	42,101	43,390	44,441	45,731	46,902

Mortality

During 2015-2019 there were 2,326 male and 2,096 female deaths from cancer (ex NMSC) each year.

Deaths by age at death - *All cancers (ex NMSC), Deaths in 2015-2019*

- The median age at death during 2015-2019 was 75 for men and 75 for women.
- Risk of death from cancer (ex NMSC) was strongly related to age, with 50.5% of men and 51.8% of women aged 75 years or more at time of death.
- 8.0% of cancer deaths (ex NMSC) occurred among those aged under 55.

Age at death	Average deaths per year		
	Male	Female	Both sexes
0 - 54	166	184	353
55 - 64	325	295	620
65 - 74	660	530	1,190
75 +	1,174	1,085	2,259
All ages	2,326	2,096	4,422

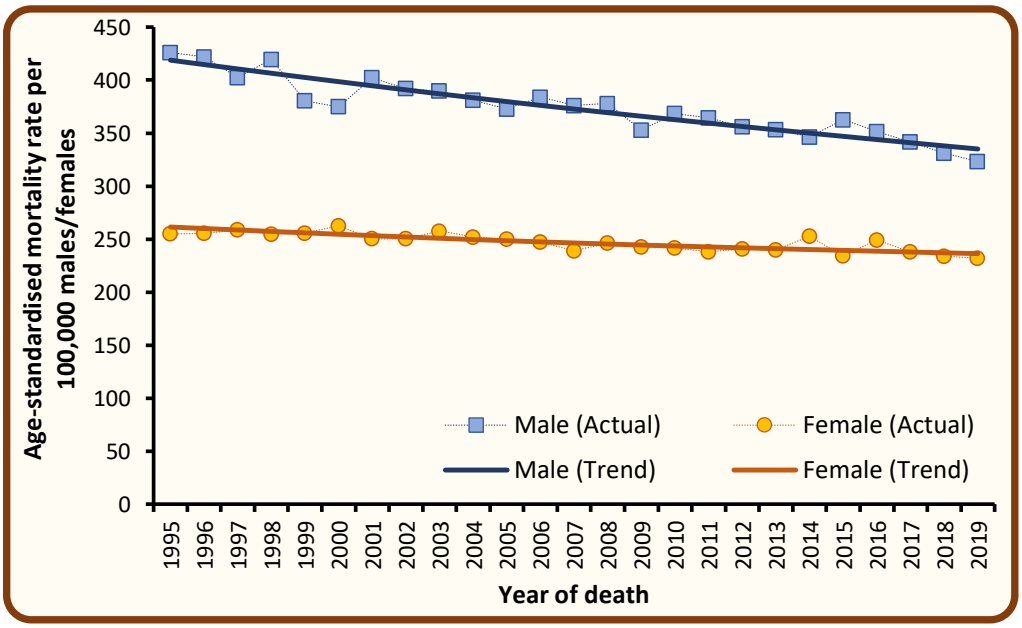
Deaths by year of death - *All cancers (ex NMSC), Deaths in 2010-2019*

- Among males the number of deaths from cancer (ex NMSC) increased by 7.6% from an annual average of 2,161 deaths in 2010-2014 to 2,326 deaths in 2015-2019.
- Among females the number of deaths from cancer (ex NMSC) increased by 6.2% from an annual average of 1,973 deaths in 2010-2014 to 2,096 deaths in 2015-2019.

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Male	2,119	2,136	2,146	2,203	2,203	2,343	2,339	2,337	2,304	2,308
Female	1,903	1,903	1,959	1,978	2,121	2,000	2,162	2,103	2,097	2,119
Both sexes	4,022	4,039	4,105	4,181	4,324	4,343	4,501	4,440	4,401	4,427

Trends in age-standardised mortality rates - *All cancers (ex NMSC), Deaths in 1995-2019*

- Among males age-standardised mortality rates from cancer (ex NMSC) decreased by 4.4% between 2010-2014 and 2015-2019 from 357.4 to 341.5 deaths per 100,000 persons years. This difference was statistically significant.
- Among females age-standardised mortality rates from cancer (ex NMSC) decreased by 2.1% between 2010-2014 and 2015-2019 from 242.6 to 237.4 deaths per 100,000 persons years. This difference was not statistically significant.



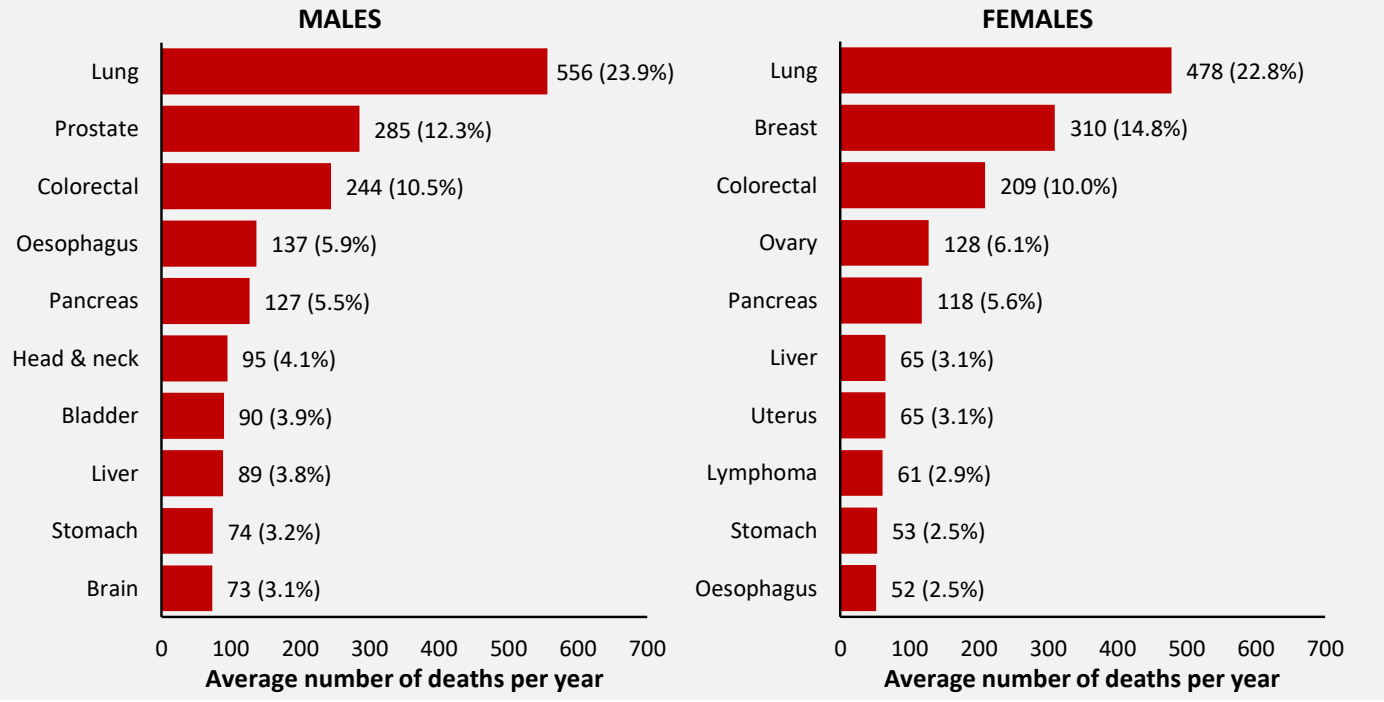
Mortality data are provided by the Northern Ireland General Registrar Office via the Department of Health.

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.

Deaths by cancer type - *All cancers (ex NMSC), Deaths in 2015-2019*

The most common causes of cancer death (ex NMSC) among men were lung cancer (23.9%), prostate cancer (12.3%) and colorectal cancer (10.5%), while the most common causes of cancer death (ex NMSC) among women were lung cancer (22.8%), breast cancer (14.8%) and colorectal cancer (10.0%).



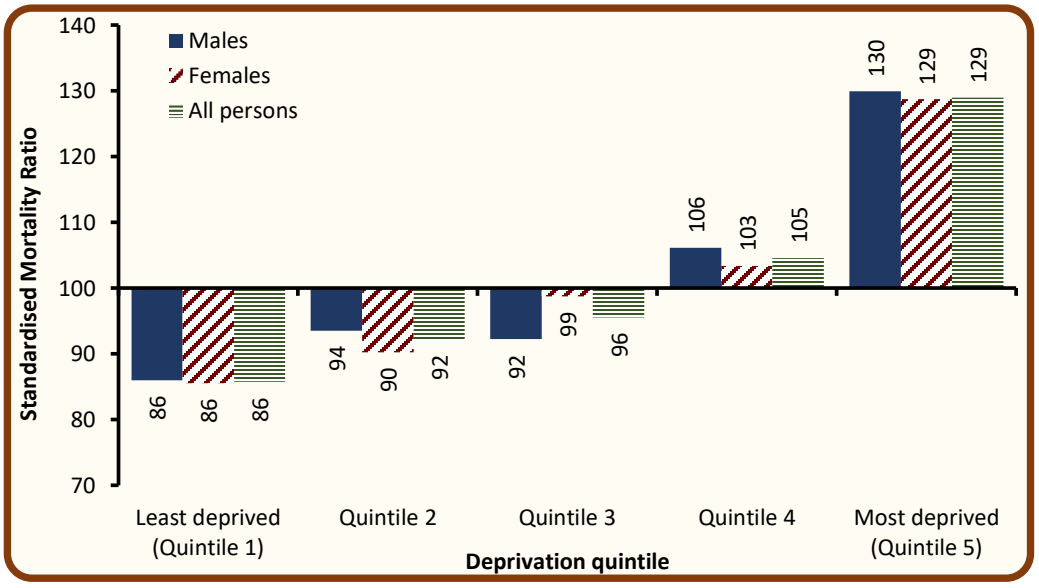
Deaths by deprivation quintile - *All cancers (ex NMSC), Deaths in 2015-2019*

The annual number of deaths during 2015-2019 varied in each deprivation quintile due to variations in population size and age.

After accounting for these factors, mortality rates:

- in the most socio-economically deprived areas were 28.9% higher than the NI average.
- in the least socio-economically deprived areas were 14.3% lower than the NI average.

Deprivation quintile	Average deaths per year		
	Male	Female	Both sexes
Least deprived (Quintile 1)	429	390	820
Quintile 2	463	395	858
Quintile 3	459	429	889
Quintile 4	490	436	926
Most deprived (Quintile 5)	483	445	927
Northern Ireland	2,326	2,096	4,422



Standardised mortality ratios compare mortality rates in each deprivation quintile with the Northern Ireland mortality rate.

A value above 100 means that mortality 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.

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 Jan 2021 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 years 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

Confidence intervals are a measure of the precision of a statistic (e.g. colorectal 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 2019 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 EUROCARE, 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). Results are based upon the date on which death occurs, and may thus 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.