Brain cancer

Number of cases per year (2014-2018) [1]			Number of deaths per year (2014-2018) [1]		
Male	Female	Both sexes	Male	Female	Both sexes
90	61	151	72	46	118
Five-year net survival (2009-2013)			**25-year prevalence (2018)**		
Male	Female	Both sexes	Male	Female	Both sexes
20.9%	25.1%	22.7%	355	295	650

Incidence

During 2014-2018:

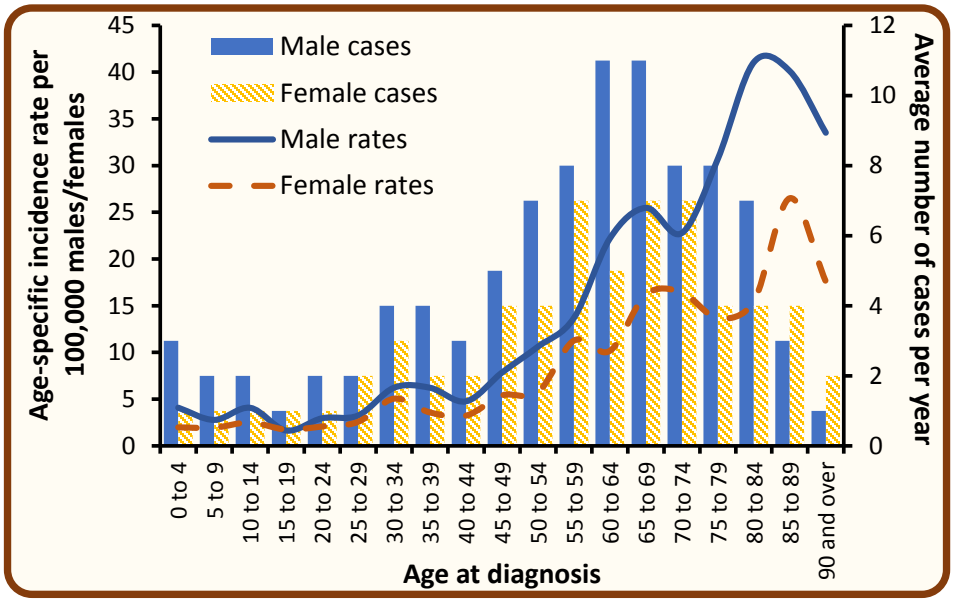
- There were 90 male and 61 female cases of brain cancer diagnosed each year.
- There were 9.9 male and 6.4 female cases of brain cancer per 100,000 males/females diagnosed each year.
- Brain cancer made up 1.9% of all male cancers (ex NMSC), and 1.3% of all female cancers (ex NMSC).
- The risk of developing brain cancer before the age of 75 was 1 in 146 for men and 1 in 225 for women.

Incidence by sex and age at diagnosis: Brain cancer 2014-2018[1]

During 2014-2018:

- The median age at diagnosis was 61 for men and 61 for women.
- Brain cancer risk varies with age, with 42.2% of men and 45.9% of women aged 65 years or more at diagnosis.
- 30.5% of cases were diagnosed among those aged under 50.

Age at diagnosis	Average cases per year		
	Male	Female	Both sexes
0 - 49	28	18	46
50 - 64	26	16	41
65 - 74	19	14	33
75 +	19	14	32
All ages	90	61	151



Incidence by sex and year of diagnosis: Brain cancer 2009-2018

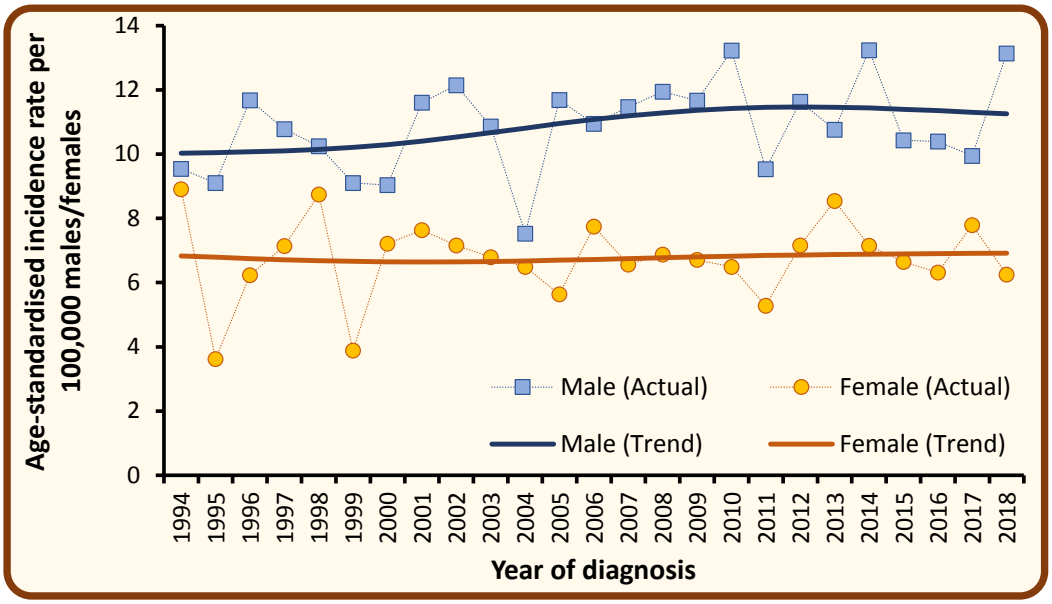
- Among males the number of cases of brain cancer increased by 7.1% from an annual average of 84 cases in 2009-2013 to 90 cases in 2014-2018.
- Among females the number of cases of brain cancer increased by 5.2% from an annual average of 58 cases in 2009-2013 to 61 cases in 2014-2018.

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Male	84	97	73	84	83	101	84	80	81	105
Female	56	53	45	61	74	62	58	57	71	57
Both sexes	140	150	118	145	157	163	142	137	152	162

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: Brain cancer 1994-2018

- Among males age-standardised incidence rates of brain cancer increased by 0.7% from 11.3 per 100,000 person years in 2009-2013 to 11.4 cases per 100,000 persons years in 2014-2018. This difference was not statistically significant.
- Among females age-standardised incidence rates of brain cancer decreased by 0.4% from 6.9 per 100,000 person years in 2009-2013 to 6.8 cases per 100,000 persons years in 2014-2018. This difference was not 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.

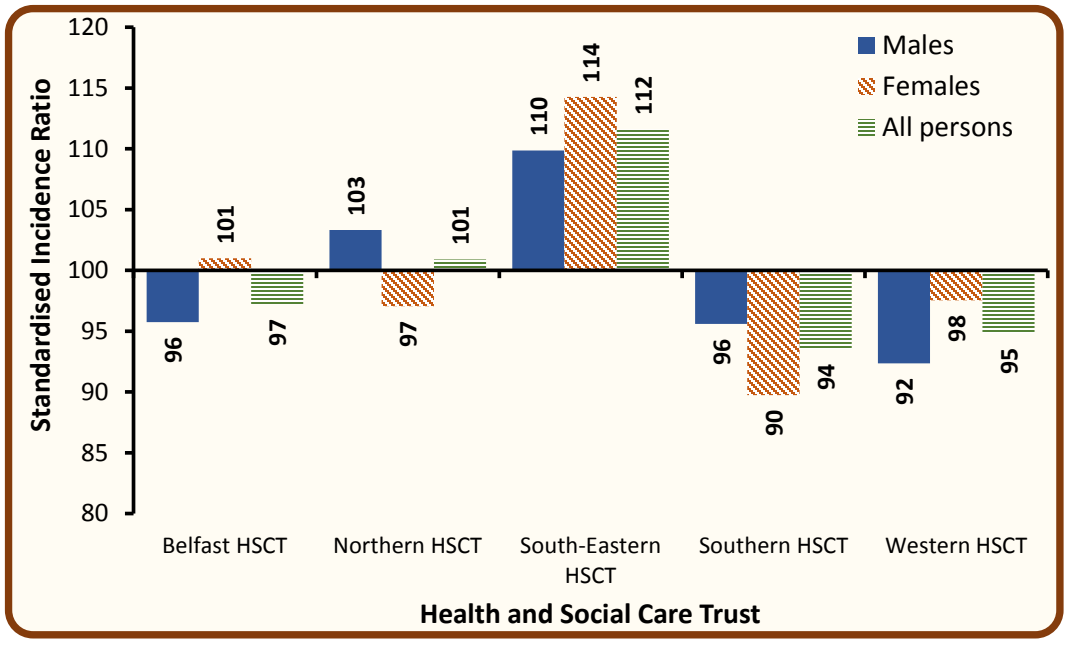
Incidence (cases and rates) by sex and Health and Social Care Trust (HSCT): Brain cancer 2014-2018[1]

The annual number of brain cancer 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 did not vary significantly from the NI average.
- in Northern HSCT did not vary significantly from the NI average.
- in South-Eastern HSCT did not vary significantly from 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	16	12	27
Northern HSCT	24	15	40
South-Eastern HSCT	20	14	34
Southern HSCT	17	10	27
Western HSCT	13	9	23
Northern Ireland	90	61	151



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.

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.
HSCT: Health and Social Care Trust

Incidence (cases and rates) by sex and deprivation quintile: Brain cancer 2014-2018[1]

The annual number of brain cancer 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):

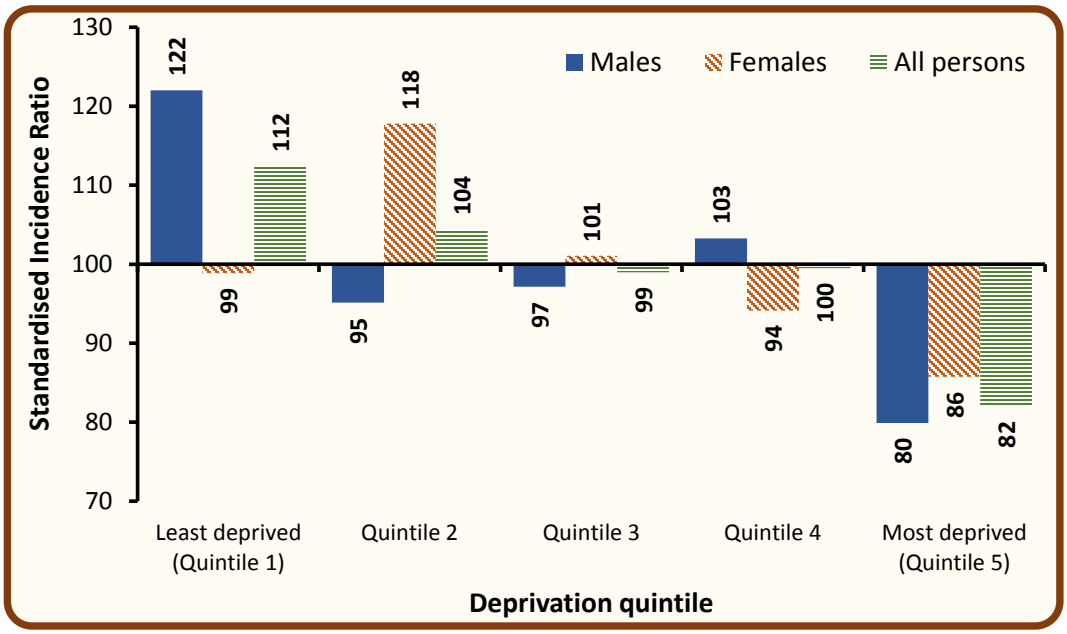
- in the most socio-economically deprived areas were 18.0% lower than the NI average.
- in the least socio-economically deprived areas did not vary significantly from the NI average for both sexes combined, but were higher than average for males.

Deprivation quintile	Average cases per year		
	Male	Female	Both sexes
Least deprived (Quintile 1)	22	12	35
Quintile 2	18	15	33
Quintile 3	19	13	31
Quintile 4	19	12	30
Most deprived (Quintile 5)	12	9	22
Northern Ireland	90	61	151

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.



Survival

- 38.2% of patients were alive one year and 18.8% were alive five years from a brain cancer diagnosis in 2009-2013. (observed survival)
- Age-standardised net survival (ASNS), which removes the effect of deaths from causes unrelated to cancer, was 44.4% one year and 22.7% five years from a brain cancer diagnosis in 2009-2013.
- Five-year survival (ASNS) for patients diagnosed in 2009-2013 was 20.9% among men and 25.1% among women.
- Estimates for survival (ASNS) of patients diagnosed during 2012-2016 are 47.9% one year, and 23.4% five years from diagnosis.

Period of diagnosis[2]	Gender	Observed survival		Age-standardised net survival	
		One-year	Five-years	One-year	Five-years
2009-2013	Male	37.8%	17.4%	42.9%	20.9%
	Female	38.6%	20.8%	46.5%	25.1%
	Both sexes	38.2%	18.8%	44.4%	22.7%
2012-2016 estimates	Male	40.0%	16.1%	46.7%	20.0%
	Female	41.6%	22.6%	49.5%	28.5%
	Both sexes	40.7%	18.8%	47.9%	23.4%

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.

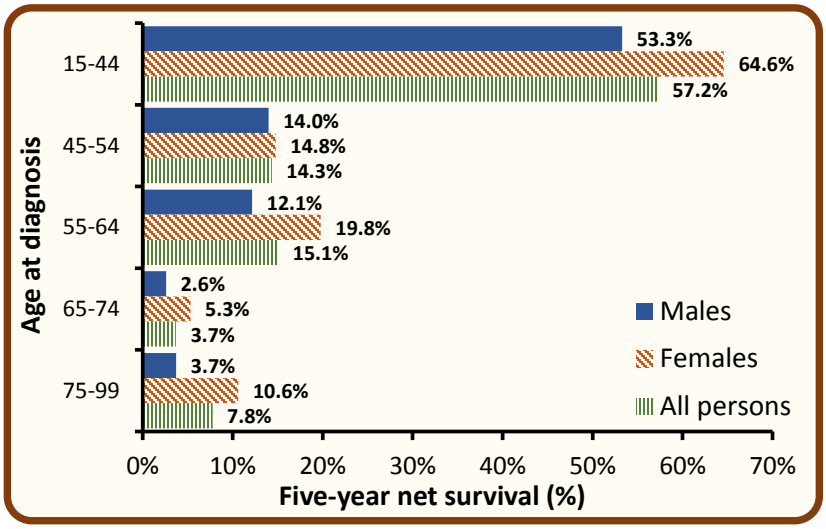
1. Annual averages based upon several years have been rounded to the nearest integer. Sums of numbers in table rows or columns may thus differ slightly from the given total.

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

ASNS: Age-standardised net survival

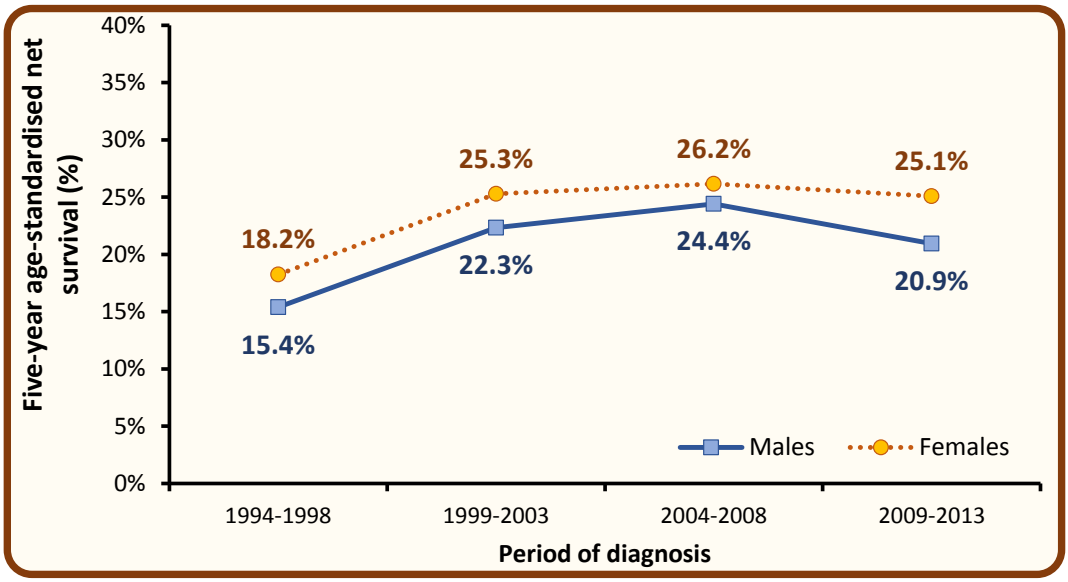
Survival by sex and age at diagnosis: Brain cancer 2009-2013

- Survival from brain cancer is strongly related to age at diagnosis with older patients having poorer five-year survival.
- Five-year net survival ranged from 57.2% among patients aged 15-44 at diagnosis to 7.8% among those aged 75 and over.
- Five-year net survival among brain cancer patients aged 75 and over was 3.7% for men and 10.6% for women.



Trends in age-standardised net survival by sex: Brain cancer 1994-2013

- Among men five-year survival (ASNS) from brain cancer increased from 15.4% for those diagnosed in 1994-1998 to 20.9% for those diagnosed in 2009-2013. This difference was not statistically significant.
- Among women five-year survival (ASNS) from brain cancer increased from 18.2% for those diagnosed in 1994-1998 to 25.1% for those diagnosed in 2009-2013. This difference was not statistically significant.



Prevalence

- At the end of 2018, there were 650 people (Males: 355; Females: 295) living with brain cancer who had been diagnosed with the disease during 1994-2018.
- Of these, 54.6% were male, 10.2% were aged 70 and over, and 13.8% 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	46	26	72	12	6	18	58	32	90
1-5 years	78	70	148	9	6	15	87	76	163
5-10 years	71	54	125	5	7	12	76	61	137
10-25 years	123	116	239	11	10	21	134	126	260
0-25 years	318	266	584	37	29	66	355	295	650

ASNS: Age-standardised net survival

Mortality

During 2014-2018:

- There were 72 male and 46 female deaths from brain cancer each year.
- Death from brain cancer made up 3.1% of male cancer deaths (ex NMSC), and 2.2% of female cancer deaths (ex NMSC).

Deaths by sex and age at death: Brain cancer 2014-2018[1]

During 2014-2018:

- The median age at death was 64 for men and 67 for women.
- Risk of death from brain cancer was strongly related to age, with 47.2% of men and 58.7% of women aged 65 years or more at time of death.
- 18.6% of brain cancer deaths occurred among those aged under 50.

Age at death	Average deaths per year		
	Male	Female	Both sexes
0 - 49	16	5	22
50 - 64	22	14	36
65 - 74	17	13	30
75 +	17	14	31
All ages	72	46	118

Deaths by sex and year of death: Brain cancer 2009-2018

- Among males the number of deaths from brain cancer increased by 7.5% from an annual average of 67 deaths in 2009-2013 to 72 deaths in 2014-2018.

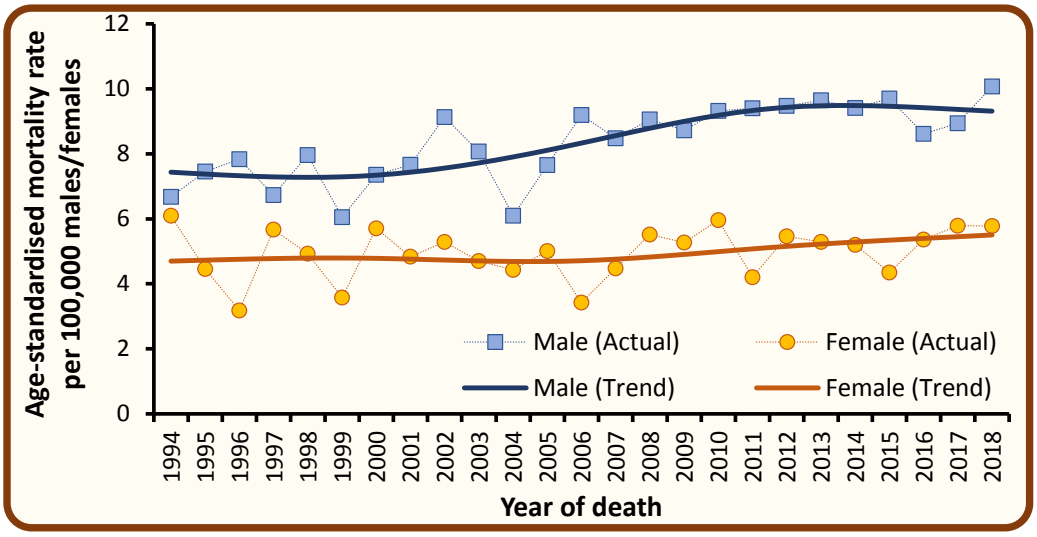
- Among females the number of deaths from brain cancer increased by 7.0% from an annual average of 43 deaths in 2009-2013 to 46 deaths in 2014-2018.

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Male	62	65	67	69	70	70	74	67	69	78
Female	42	49	34	46	44	45	37	47	52	51
Both sexes	104	114	101	115	114	115	111	114	121	129

Trends in age-standardised mortality rates by sex: Brain cancer 1994-2018

- Among males age-standardised mortality rates from brain cancer increased by 0.3% from 9.3 per 100,000 person years in 2009-2013 to 9.4 deaths per 100,000 persons years in 2014-2018. This difference was not statistically significant.

- Among females age-standardised mortality rates from brain cancer increased by 1.0% from 5.2 per 100,000 person years in 2009-2013 to 5.3 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.

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

Further Information

Further data is available from the NI Cancer Registry
web site: **www.qub.ac.uk/nicr**
Phone: +44 (0)28 9097 6028
e-mail: nicr@qub.ac.uk

Acknowledgements

The Northern Ireland Cancer Registry (NICR) is funded by the Public Health Agency. NICR uses data provided by patients and collected by the health service as part of their care and support.