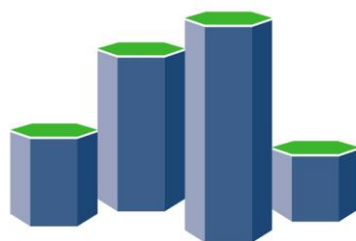

Brain tumours

1993-2022

(Malignant and non-invasive)

(ICD10 codes: C70-C72, C75.1-C75.3, D32-D33, D35.2-D35.4, D42-D43, D44.3-D44.5)



Northern Ireland
Cancer Registry

Northern Ireland Cancer Registry, 2025

An official statistics publication

ABOUT THIS REPORT

Contents

This report includes information on incidence of brain tumours (malignant and non-invasive) as recorded by the Northern Ireland Cancer Registry (NICR). Incidence data is available annually from 1993 to 2022, however in order to provide stable and robust figures the majority of information presented in this report is based upon the average number of cases diagnosed in the last five years.

Methodology

The methodology used in producing the statistics presented in this report, including details of data sources, classifications and coding are available in the accompanying methodology report available at: www.qub.ac.uk/research-centres/nicr/CancerInformation/official-statistics.

Official statistics

The incidence and prevalence statistics in this publication are designated as official statistics signifying that they comply with the Code of Practice for Official Statistics. Further information on this code is available at code.statisticsauthority.gov.uk.

Cancer mortality data

The NI Statistics and Research Agency (NISRA) is the official statistics provider of cancer mortality data in Northern Ireland. However, for completeness, data on cancer mortality is also provided in this report. While analysis is conducted by NICR staff, the original data is provided courtesy of the General Register Office (NI) via the Department of Health.

Reuse of information

The information in this report (and any supplementary material) is available for reuse free of charge and without the need to contact NICR. However, we request that NICR is acknowledged as the source of any reused information. The following reference is recommended:

Northern Ireland Cancer Registry 2025. Brain tumours: 1993-2022. Available at: www.qub.ac.uk/research-centres/nicr

Further information

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

Phone: +44 (0)28 9097 6028 **e-mail:** nicr@qub.ac.uk

Acknowledgements

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

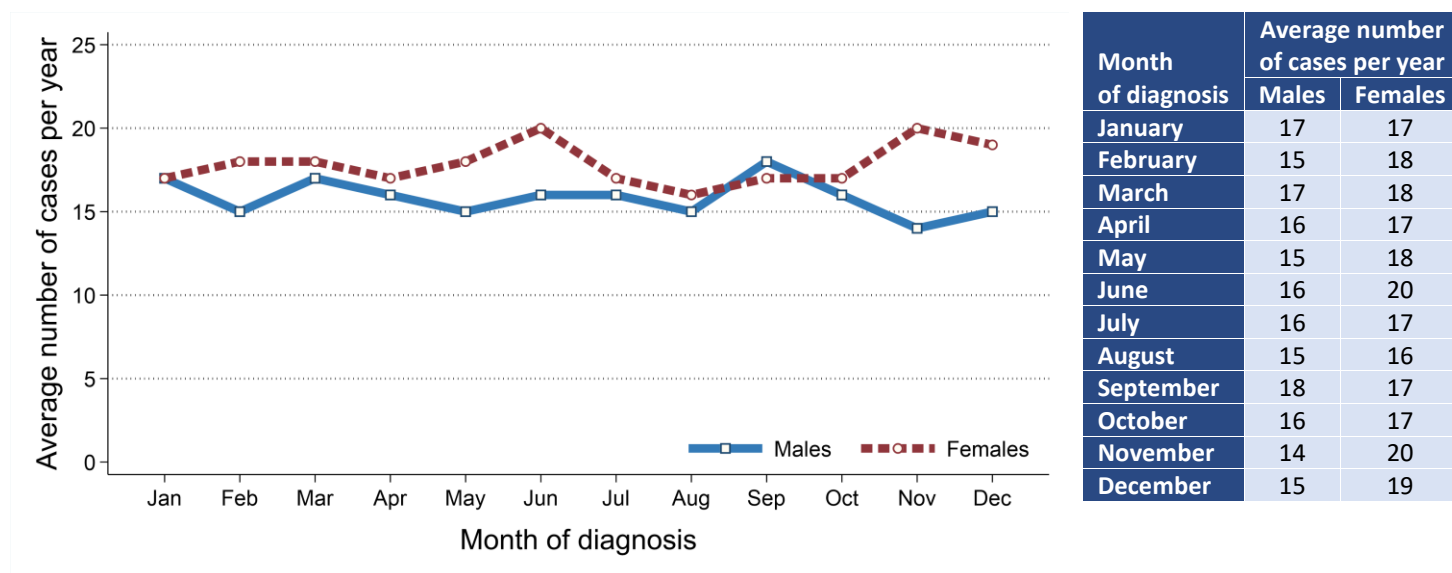
NICR is funded by the Public Health Agency and is based in Queen's University, Belfast.



INCIDENCE

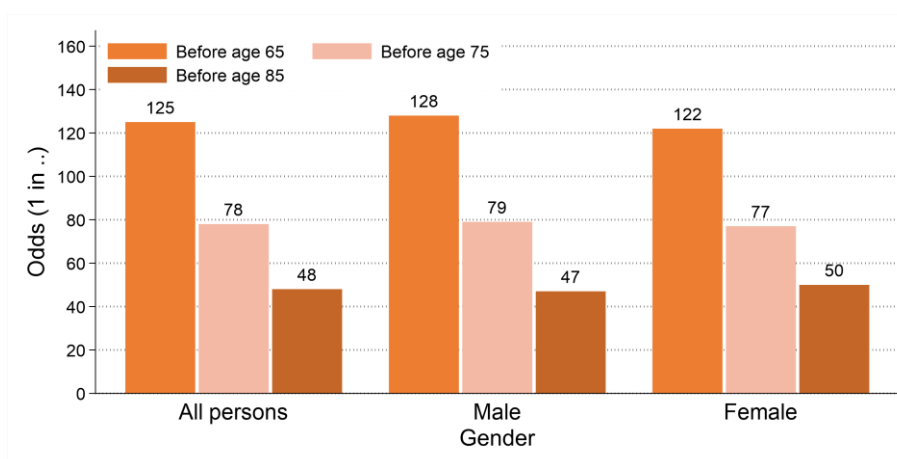
- There were 2,028 cases of brain tumours (malignant and non-invasive) diagnosed during 2018-2022 in Northern Ireland. On average this was 406 cases per year.
- During this period 53.0% of brain tumour cases were among women (Male cases: 954, Female cases: 1,074). On average there were 191 male and 215 female cases of brain tumours per year.
- The most common diagnosis month during 2018-2022 was September among males with 18 cases per year and June and November among females with 20 cases per year.

Figure 1: Average number of cases of brain tumours per year in 2018-2022 by month of diagnosis



- The brain tumour incidence rates for each gender were 20.4 cases per 100,000 males and 22.2 cases per 100,000 females.
- The odds of developing a brain tumour before age 85 was 1 in 47 for men and 1 in 50 for women.

Figure 2: Odds of developing a brain tumour in 2018-2022



INCIDENCE BY AGE

- The median age of patients diagnosed with a brain tumour during 2018-2022 was 65 years (Males: 65, Females: 66).
- The risk of developing a brain tumour varied by age, with 28.7% of men and 32.6% of women diagnosed with a brain tumour aged 75 and over at diagnosis.
- In contrast, 30.3% of patients diagnosed with a brain tumour were aged 0 to 54 at diagnosis.

Figure 3: Average number of cases of brain tumours diagnosed per year in 2018-2022 by age at diagnosis

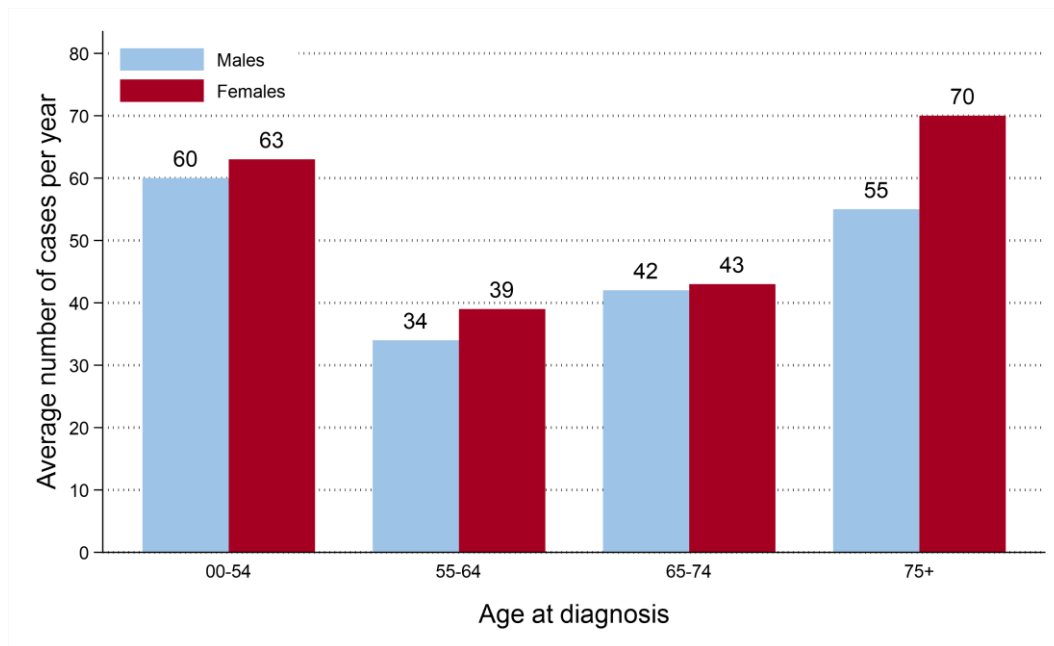
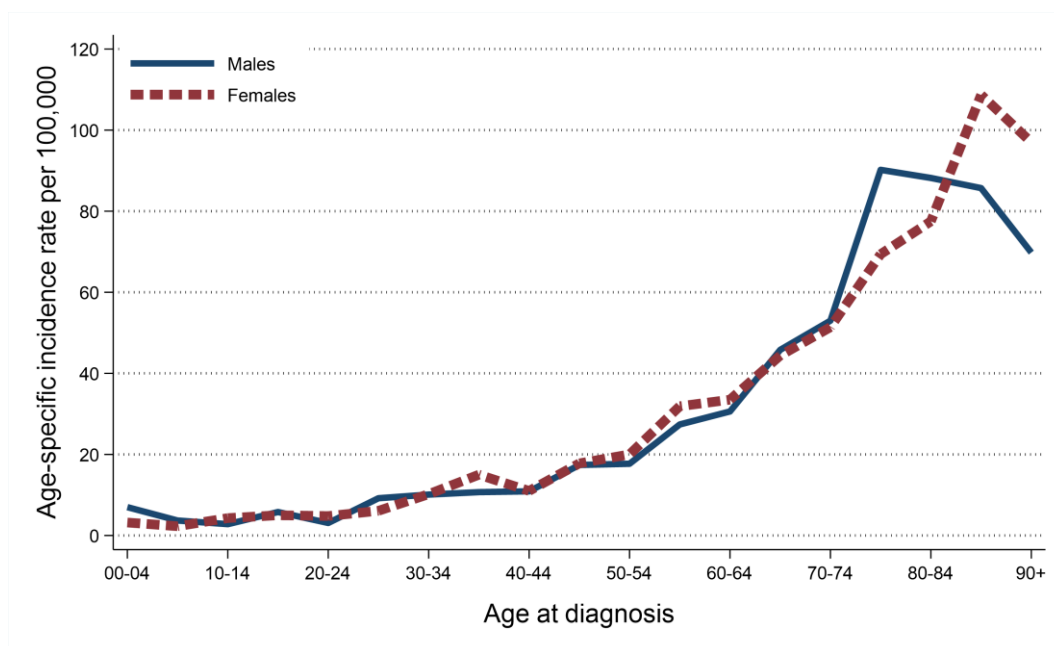


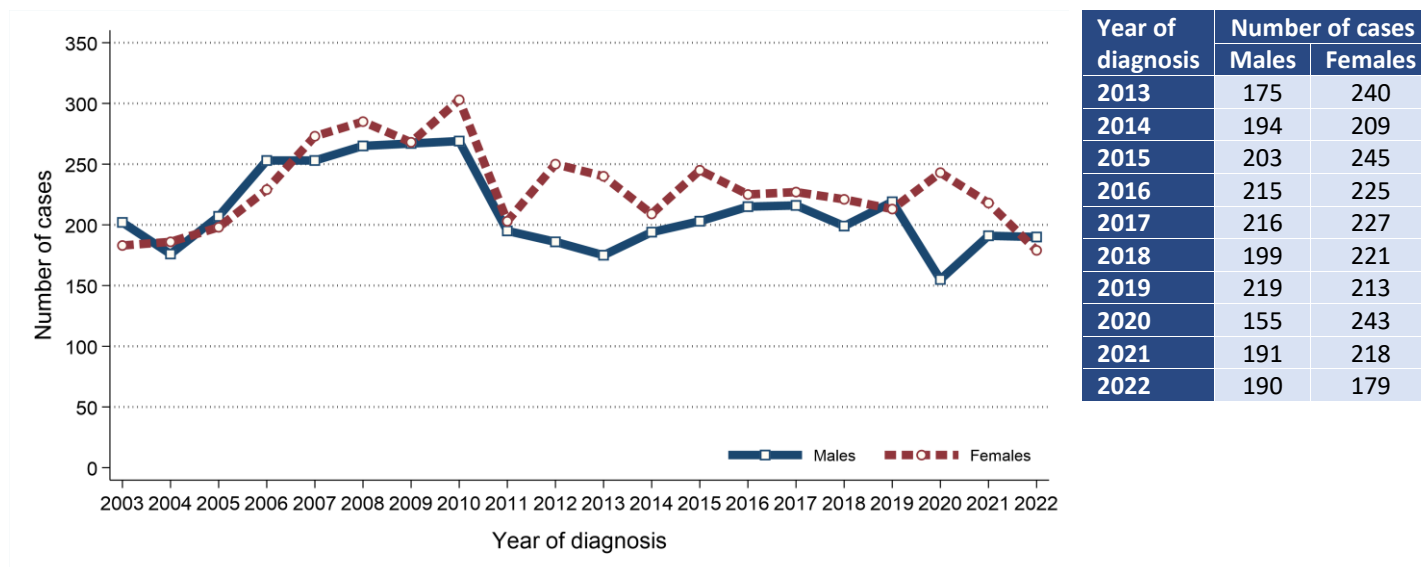
Figure 4: Age-specific incidence rates of brain tumours in 2018-2022



INCIDENCE TRENDS

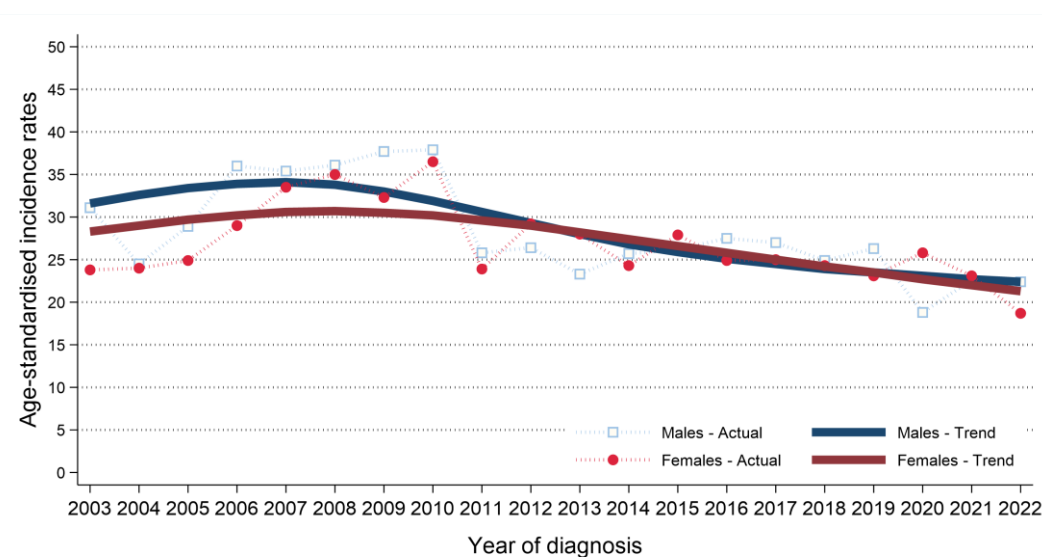
- The number of cases of brain tumours among males decreased between 2013-2017 and 2018-2022 by 4.9% from 1,003 cases (201 cases per year) to 954 cases (191 cases per year).
- The number of cases of brain tumours among females decreased between 2013-2017 and 2018-2022 by 6.3% from 1,146 cases (229 cases per year) to 1,074 cases (215 cases per year).

Figure 5: Trends in number of cases of brain tumours diagnosed from 2003 to 2022



- Male age-standardised brain tumour incidence rates decreased between 2013-2017 and 2018-2022 by 11.5% from 26.0 to 23.0 cases per 100,000 males. This change was not statistically significant.
- Female age-standardised brain tumour incidence rates decreased between 2013-2017 and 2018-2022 by 11.2% from 25.9 to 23.0 cases per 100,000 females. This change was not statistically significant.

Figure 6: Trends in incidence rates of brain tumours from 2003 to 2022



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).

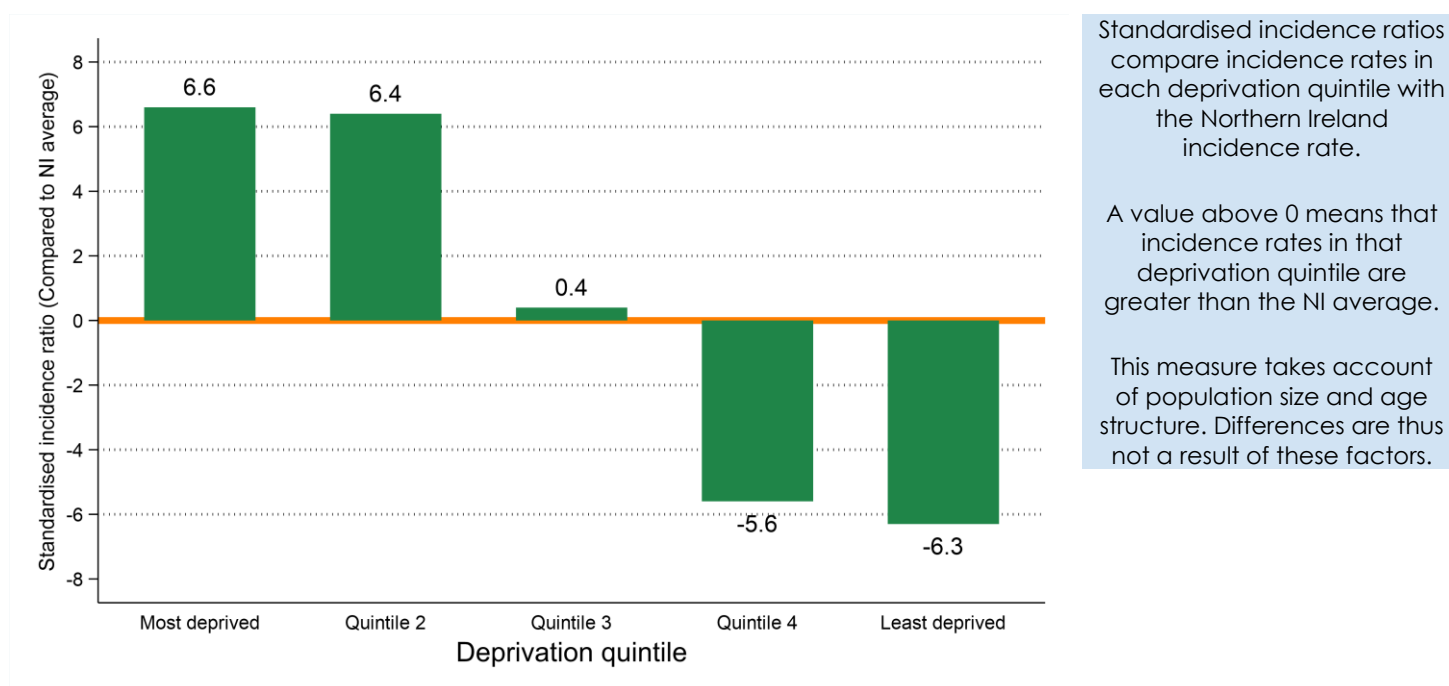
INCIDENCE BY DEPRIVATION

- The number of cases of brain tumours diagnosed during 2018-2022 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 did not vary significantly from the NI average.
 - in the least socio-economically deprived areas did not vary significantly from the NI average.

Table 1: Number of cases of brain tumours diagnosed in 2018-2022 by deprivation quintile

Deprivation quintile	All persons		Male		Female	
	Total cases in period	Average cases per year	Total cases in period	Average cases per year	Total cases in period	Average cases per year
Northern Ireland	2,028	406	954	191	1,074	215
Most deprived	366	73	180	36	186	37
Quintile 2	433	87	197	39	236	47
Quintile 3	429	86	195	39	234	47
Quintile 4	406	81	189	38	217	43
Least deprived	394	79	193	39	201	40

Figure 7: Standardised incidence ratio comparing deprivation quintile to Northern Ireland for brain tumours diagnosed in 2018-2022



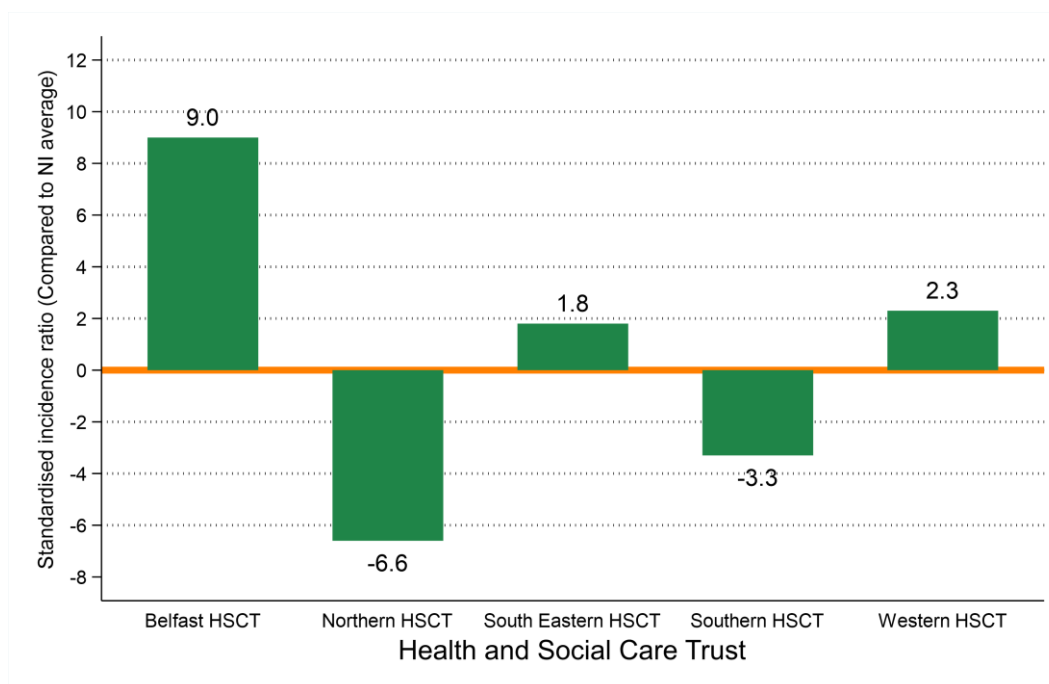
INCIDENCE BY HEALTH AND SOCIAL CARE TRUST

- The number of cases of brain tumours diagnosed during 2018-2022 varied in each Health and Social Care Trust due to variations in population size and age.
- After accounting for these factors, incidence rates:
 - 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.

Table 2: Number of cases of brain tumours diagnosed in 2018-2022 by Health and Social Care Trust

Health and Social Care Trust	All persons		Male		Female	
	Total cases in period	Average cases per year	Total cases in period	Average cases per year	Total cases in period	Average cases per year
Northern Ireland	2,028	406	954	191	1,074	215
Belfast HSCT	403	81	195	39	208	42
Northern HSCT	496	99	232	46	264	53
South Eastern HSCT	425	85	196	39	229	46
Southern HSCT	379	76	170	34	209	42
Western HSCT	325	65	161	32	164	33

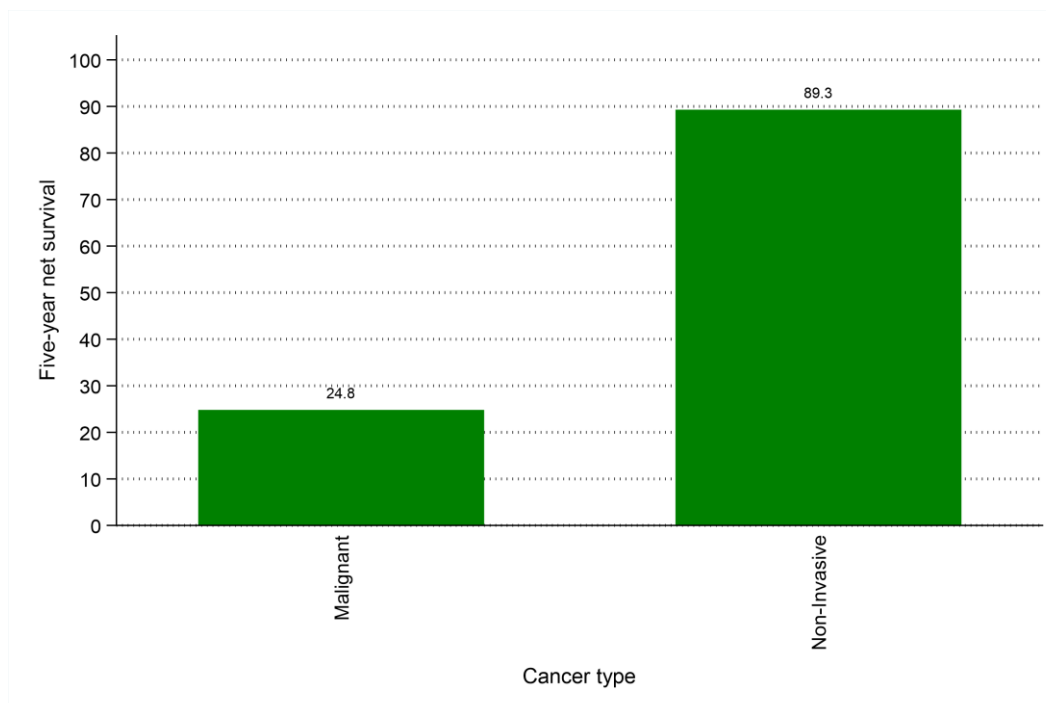
Figure 8: Standardised incidence ratio comparing Health and Social Care Trust to Northern Ireland for brain tumours diagnosed in 2018-2022



SURVIVAL BY CANCER TYPE

- Five-year age-standardised net (ASNS) for patients diagnosed in 2013-2017 was 89.3% for non-invasive brain tumours and 24.8% for brain cancer.

Figure 9: Five-year age-standardised net survival from brain tumour for patients diagnosed in 2013-2017 by tumour type



- Five-year survival (ASNS) did not change significantly for either tumour type between 2008-2012 and 2013-2017.

-Table 3: Trends in five-year age-standardised net survival from brain tumours for patients diagnosed in 2008-2017

Tumour type	All persons		Male		Female	
	2008-2012	2013-2017	2008-2012	2013-2017	2008-2012	2013-2017
Malignant	23.9%	24.8%	22.0%	21.6%	26.9%	28.9%
Non-invasive	90.4%	89.3%	90.1%	91.0%	90.7%	88.1%

PREVALENCE

- At the end of 2022, there were 5,483 people (Males: 2,388; Females: 3,095) living with a brain tumour who had been diagnosed with the disease during 1998-2022.
- Of these 5.1% had been diagnosed in the previous year (one-year prevalence) and 43.3% in the previous 10 years (ten-year prevalence).
- 24.0% of brain tumour survivors were aged 75 and over at the end of 2022.

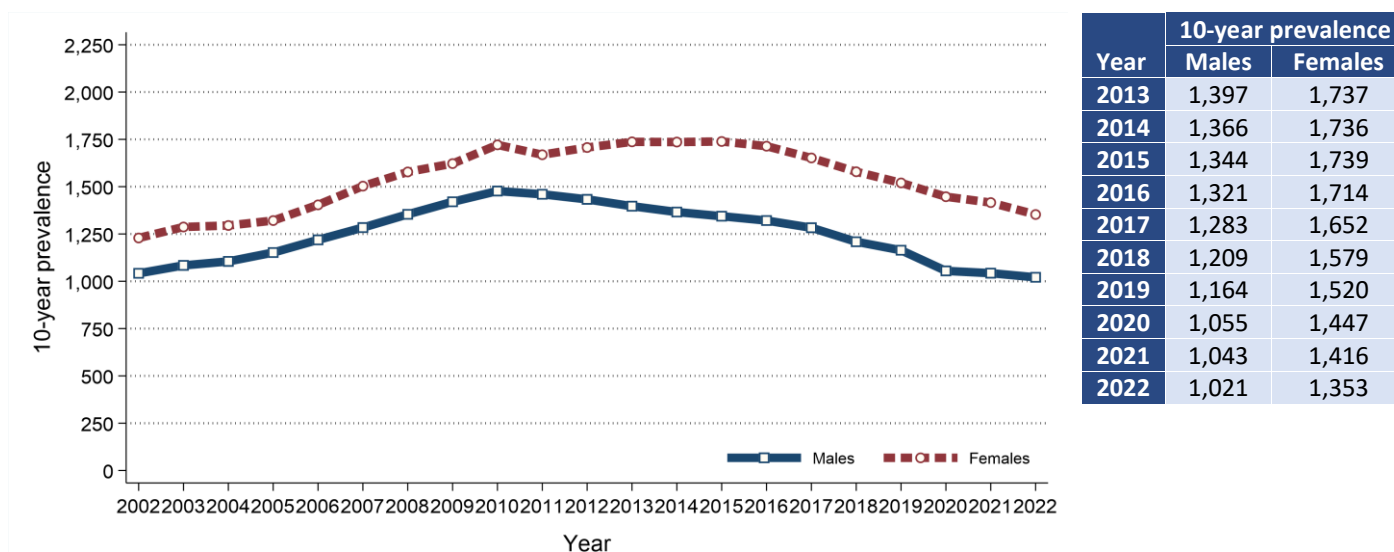
Table 4: 25-year prevalence of brain tumours by age at end of 2022

Gender	Age at end of 2022	25-year prevalence	Time since diagnosis			
			0 to 1 year	1 to 5 years	5 to 10 years	10 to 25 years
All persons	All ages	5,483	281	959	1,134	3,109
	0 to 74	4,165	206	724	871	2,364
	75 and over	1,318	75	235	263	745
Male	All ages	2,388	141	388	492	1,367
	0 to 74	1,830	109	304	378	1,039
	75 and over	558	32	84	114	328
Female	All ages	3,095	140	571	642	1,742
	0 to 74	2,335	97	420	493	1,325
	75 and over	760	43	151	149	417

PREVALENCE TRENDS

- 10-year prevalence of brain tumours among males decreased between 2017 and 2022 by 20.4% from 1,283 survivors to 1,021 survivors.
- 10-year prevalence of brain tumours among females decreased between 2017 and 2022 by 18.1% from 1,652 survivors to 1,353 survivors.

Figure 10: Trends in 10-year prevalence of brain tumours in 2002-2022



MORTALITY

- There were 768 deaths from brain tumours (malignant and non-invasive) during 2018-2022 in Northern Ireland. On average this was 154 deaths per year.
- During this period 43.8% of brain tumour deaths were among women (Male deaths: 432, Female deaths: 336). On average there were 86 male and 67 female deaths from brain tumours per year.
- The median age of patients who died from a brain tumour during 2018-2022 was 70 years (Males: 69, Females: 72).
- The risk of dying from a brain tumour varied by age, with 37.6% of those who died from a brain tumour aged 75 and over at death.
- In contrast, 17.7% of patients who died from a brain tumour were aged 0 to 54 at death.

Figure 11: Average number of deaths from brain tumours per year in 2018-2022 by age at death

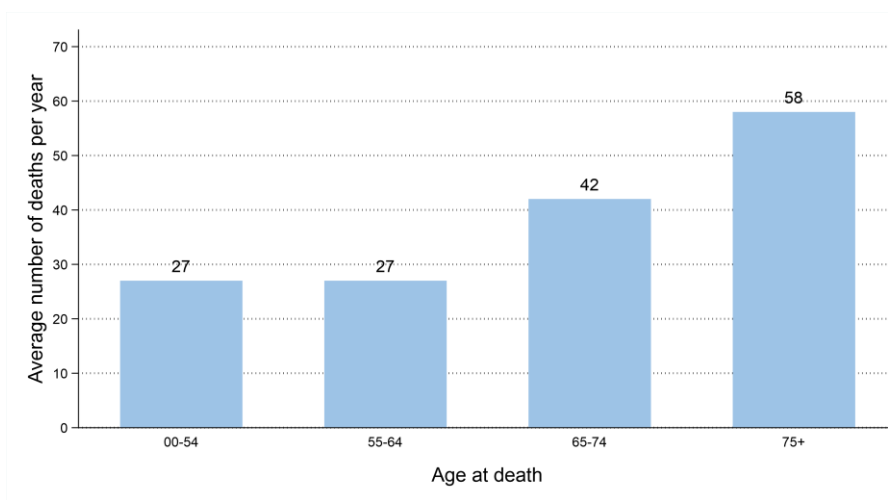
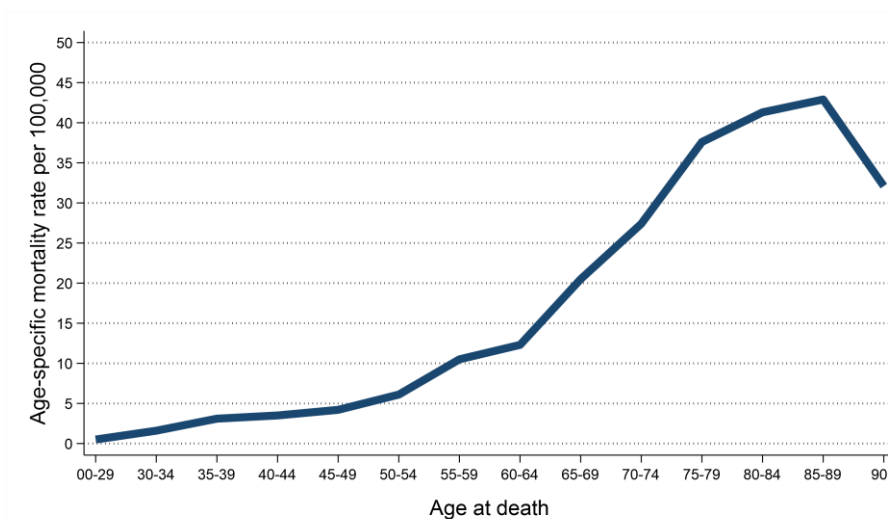


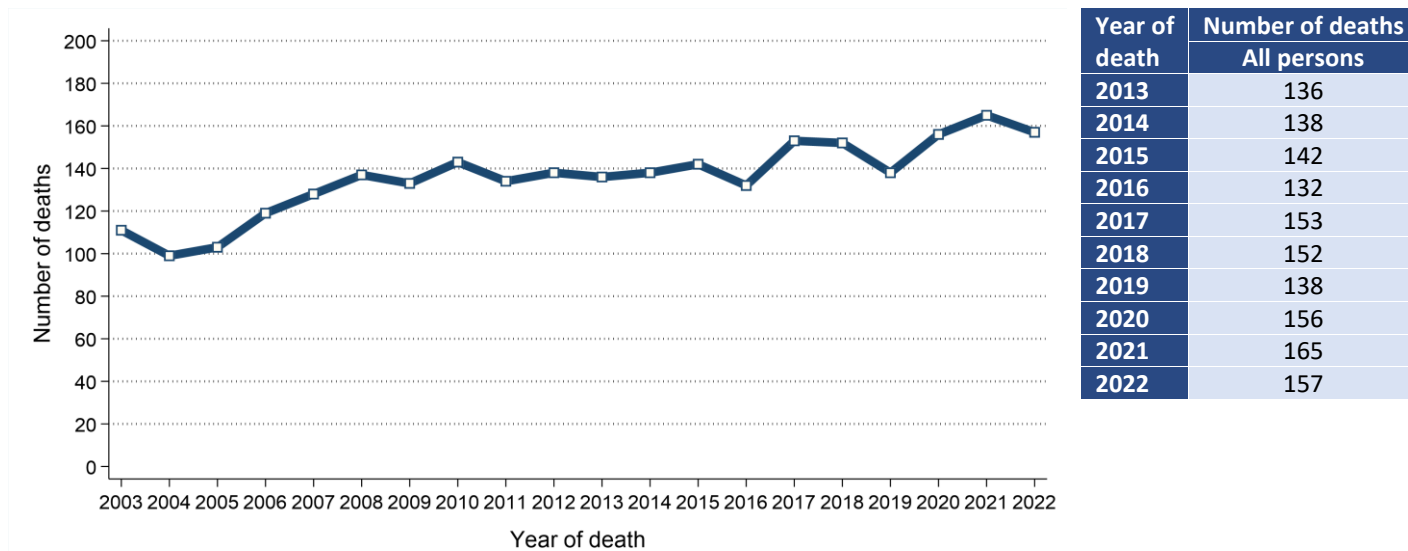
Figure 12: Age-specific mortality rates of brain tumours in 2018-2022



MORTALITY TRENDS

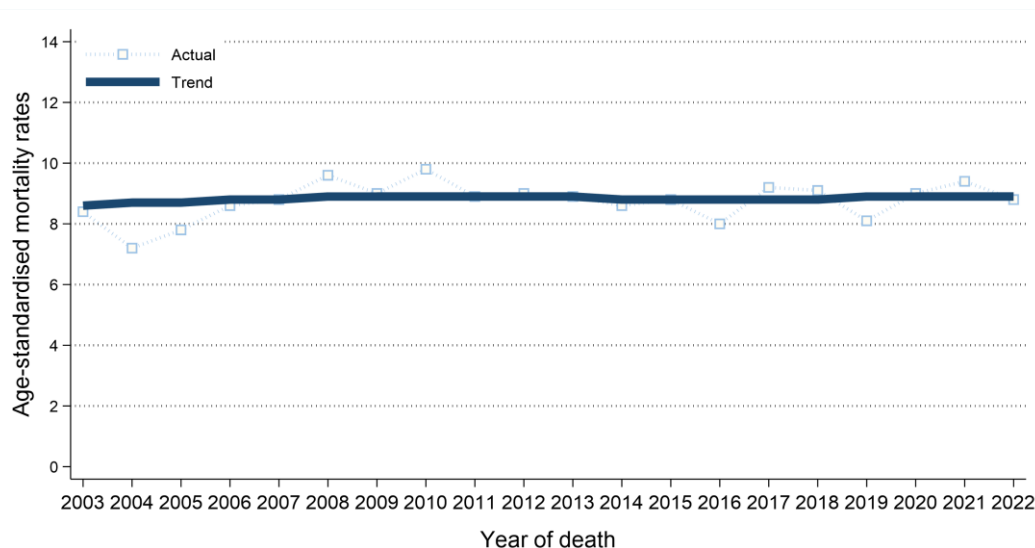
- The number of deaths from brain tumours increased between 2013-2017 and 2018-2022 by 9.6% from 701 deaths (140 deaths per year) to 768 deaths (154 deaths per year).

Figure 13: Trends in the number of deaths from brain tumours from 2003 to 2022



- Age-standardised brain tumour mortality rates increased between 2013-2017 and 2018-2022 by 2.3% from 8.7 to 8.9 deaths per 100,000 persons. This change was not statistically significant.

Figure 14: Trends in mortality rates of brain tumours from 2003 to 2022



Age-standardised mortality rates illustrate the change in the number of deaths 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.

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#/I>

Population data: 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: Geographic areas are assigned based on a patient's postcode of usual residence at diagnosis using the Jul 2024 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).

Crude incidence/mortality rate: 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.

Age-standardised incidence/mortality rates per 100,000 person years are estimates 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.

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 measure the precision of a statistic (e.g. brain tumour 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. brain tumour 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 2022 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.