Cancer among young adults

1993-2022

(Excluding non-melanoma skin cancer)

(ICD10 codes: C00-C43, C45-C97; Aged 15-24)

Northern Ireland Cancer Registry

Northern Ireland Cancer Registry, 2025

An official statistics publication

ABOUT THIS REPORT

Contents

This report includes information on incidence of cancer among young adults (excluding non-melanoma skin cancer) 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 ten 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, prevalence and survival 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. Cancer among young adults: 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

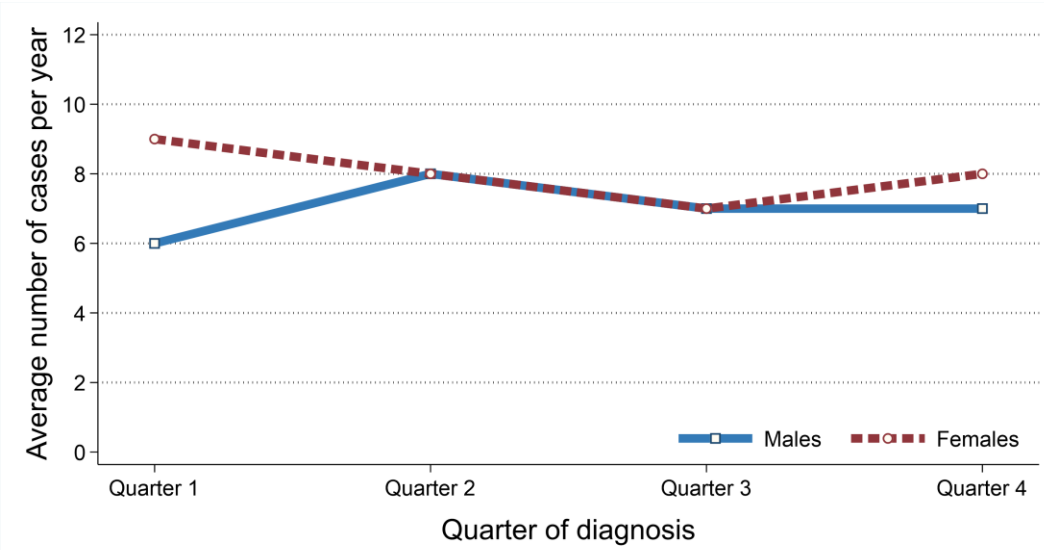
The Northern Ireland Cancer Registry (NICR) uses data provided by patients and collected by the health service as part of their care and support.

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

INCIDENCE

- There were 589 cases of cancer among young adults (excluding non-melanoma skin cancer) diagnosed during 2013-2022 in Northern Ireland. On average this was 59 cases per year.
- During this period 53.0% of young adult cancer cases were among women (Male cases: 277, Female cases: 312). On average there were 28 male and 31 female cases of cancer among young adults per year.
- The most common diagnosis quarter during 2013-2022 was quarter 2 among males with 8 cases per year and quarter 1 among females with 9 cases per year.

Figure 1: Average number of cases of cancer among young adults per year in 2013-2022 by quarter of diagnosis



Quarter of diagnosis	Average number of cases per year	
	Males	Females
Quarter 1	6	9
Quarter 2	8	8
Quarter 3	7	7
Quarter 4	7	8

- The young adult cancer incidence rates for each gender were 23.2 cases per 100,000 males aged 15 to 24 and 27.5 cases per 100,000 females aged 15 to 24.

INCIDENCE BY CANCER TYPE

- During 2013-2022 the most common cancer types among males aged 15 to 24 were:
  - Germ cell tumour, trophoblastic tumour, and neoplasm of gonad (24.5%),
  - Other malignant epithelial neoplasm and malignant melanoma (23.5%) and
  - Lymphoma and reticuloendothelial neoplasm (23.1%).

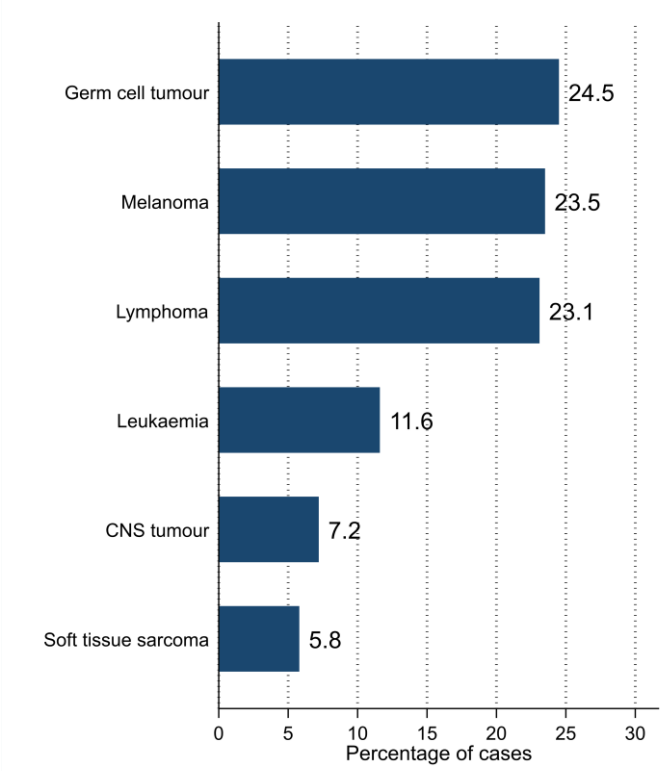
- Among females they were:
  - Other malignant epithelial neoplasm and malignant melanoma (44.6%),
  - Lymphoma and reticuloendothelial neoplasm (23.1%) and
  - Germ cell tumour, trophoblastic tumour, and neoplasm of gonad (10.9%).

Table 1: Number of cases of cancer among young adults diagnosed in 2013-2022 by cancer type

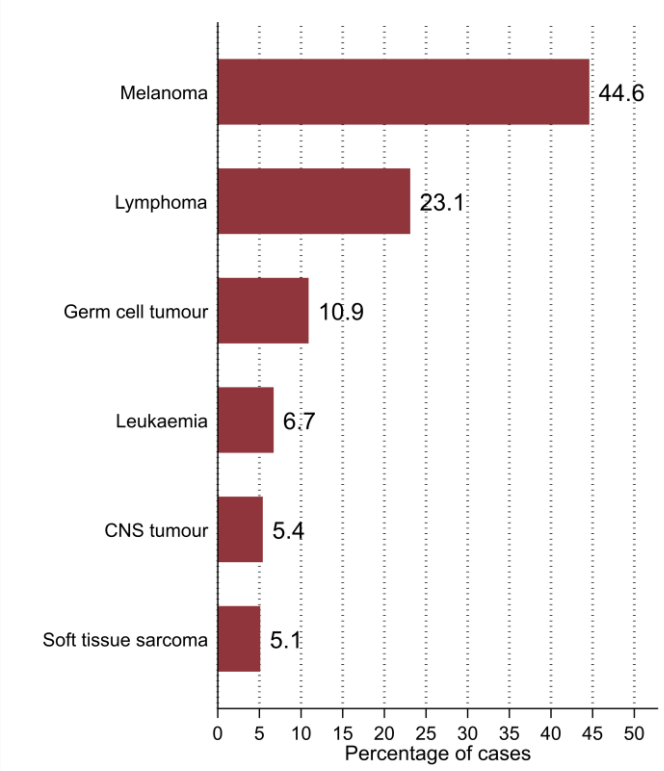
Cancer type	All persons		Male		Female	
	Total cases in period	Average cases per year	Total cases in period	Average cases per year	Total cases in period	Average cases per year
Cancer among young adults	**589**	**59**	**277**	**28**	**312**	**31**
	.	.	.	.	.	.
Central nervous system and miscellaneous intracranial and intraspinal neoplasm	37	4	20	2	17	2
Germ cell tumour, trophoblastic tumour, and neoplasm of gonad	102	10	68	7	34	3
Leukaemia, myeloproliferative disease, and myelodysplastic disease	53	5	32	3	21	2
Lymphoma and reticuloendothelial neoplasm	136	14	64	6	72	7
Other malignant epithelial neoplasm and malignant melanoma	204	20	65	7	139	14
Soft tissue and other extraosseous sarcoma	32	3	16	2	16	2
Other cancer among young adults	25	3	12	1	13	1

Figure 2: Proportion of cases of cancer among young adults in 2013-2022 by cancer type

MALE



FEMALE

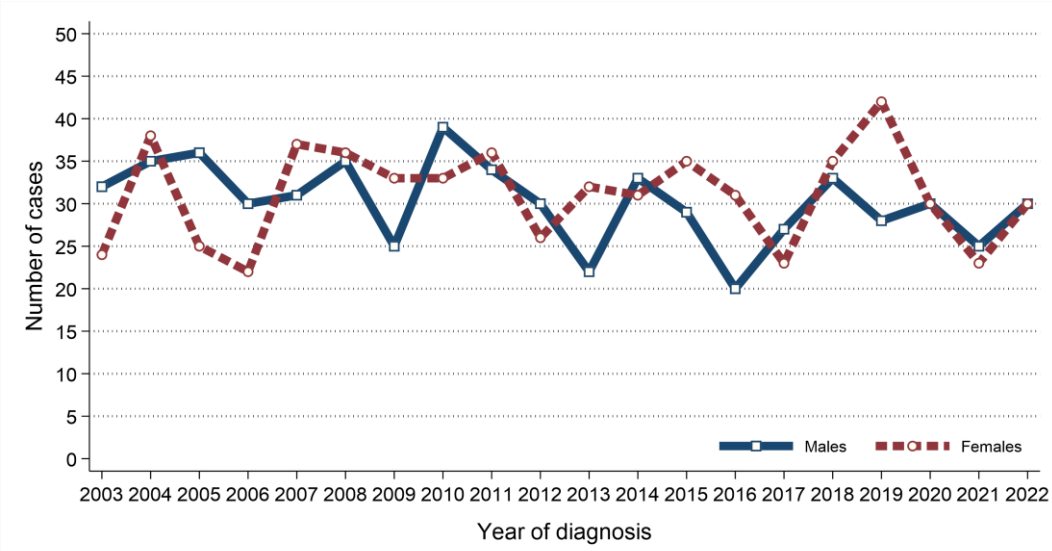


Note: CNS tumour = Central nervous system and miscellaneous intracranial and intraspinal neoplasm, Germ cell tumour = Germ cell tumour, trophoblastic tumour, and neoplasm of gonad, Leukaemia = Leukaemia, myeloproliferative disease, and myelodysplastic disease, Lymphoma = Lymphoma and reticuloendothelial neoplasm, Melanoma = Other malignant epithelial neoplasm and malignant melanoma, Soft tissue sarcoma = Soft tissue and other extraosseous sarcoma.

INCIDENCE TRENDS

- The number of cases of cancer among males aged 15 to 24 increased between 2013-2017 and 2018-2022 by 11.5% from 131 cases (26 cases per year) to 146 cases (29 cases per year).
- The number of cases of cancer among females aged 15 to 24 increased between 2013-2017 and 2018-2022 by 5.3% from 152 cases (30 cases per year) to 160 cases (32 cases per year).

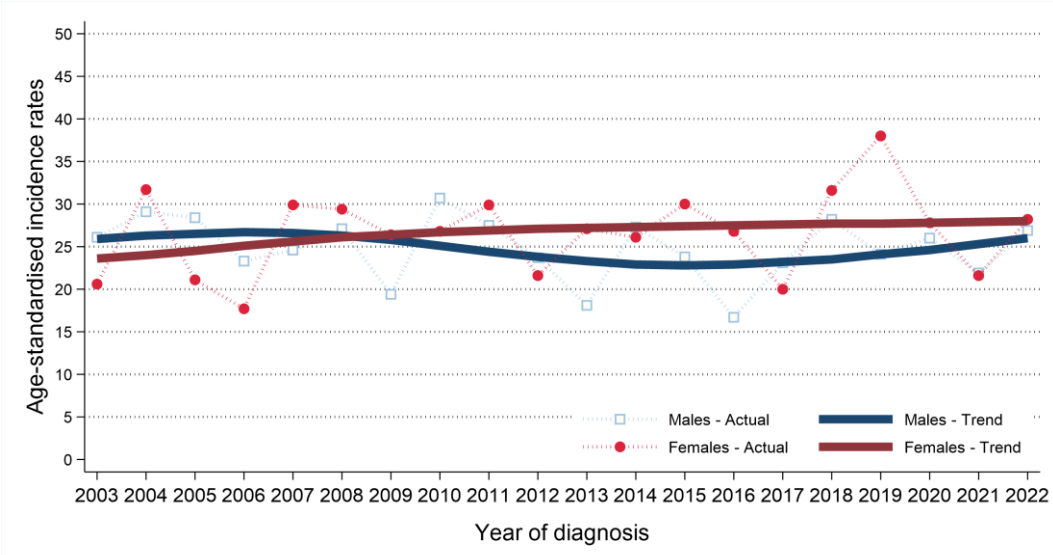
Figure 2: Trends in number of cases of cancer among young adults diagnosed from 2003 to 2022



Year of diagnosis	Number of cases	
	Males	Females
2013	22	32
2014	33	31
2015	29	35
2016	20	31
2017	27	23
2018	33	35
2019	28	42
2020	30	30
2021	25	23
2022	30	30

- Male age-standardised young adult cancer incidence rates increased between 2013-2017 and 2018-2022 by 17.0% from 21.8 to 25.5 cases per 100,000 males aged 15 to 24. This change was not statistically significant.
- Female age-standardised young adult cancer incidence rates increased between 2013-2017 and 2018-2022 by 13.8% from 26.0 to 29.6 cases per 100,000 females aged 15 to 24. This change was not statistically significant.

Figure 3: Trends in incidence rates of cancer among young adults 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).

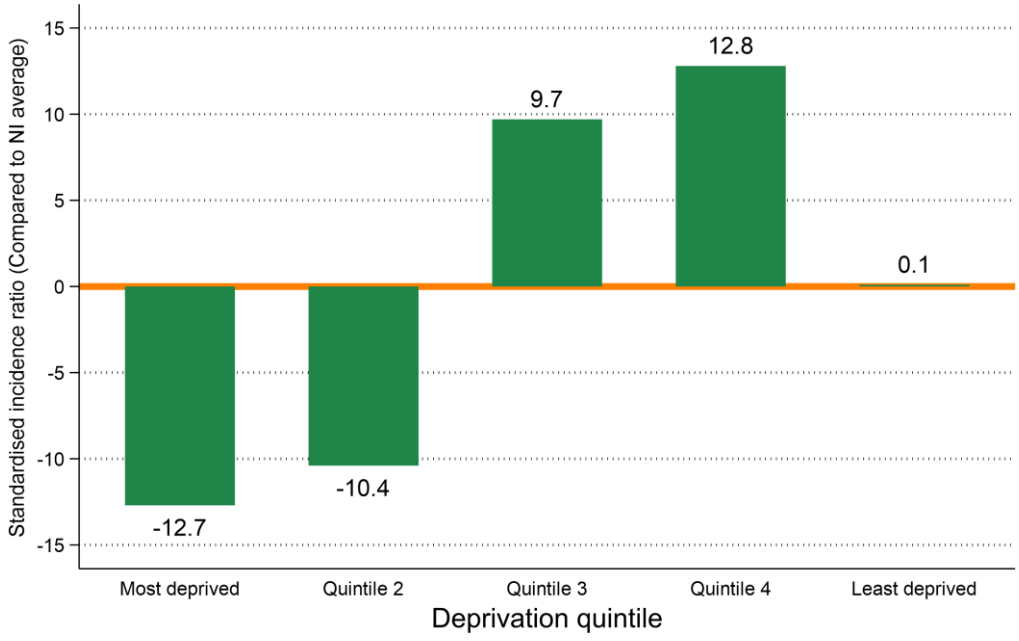
INCIDENCE BY DEPRIVATION

- The number of cases of cancer among young adults diagnosed during 2013-2022 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 2: Number of cases of cancer among young adults diagnosed in 2013-2022 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	**589**	**59**	**277**	**28**	**312**	**31**
	.	.	.	.	.	.
Most deprived	104	10	50	5	54	5
Quintile 2	105	11	51	5	54	5
Quintile 3	140	14	64	6	76	8
Quintile 4	131	13	62	6	69	7
Least deprived	109	11	50	5	59	6
Unknown	0	0	0	0	0	0

Figure 5: Standardised incidence ratio comparing deprivation quintile to Northern Ireland for cancer among young adults diagnosed in 2013-2022



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

A value above 0 means that incidence rates in that deprivation quintile 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.

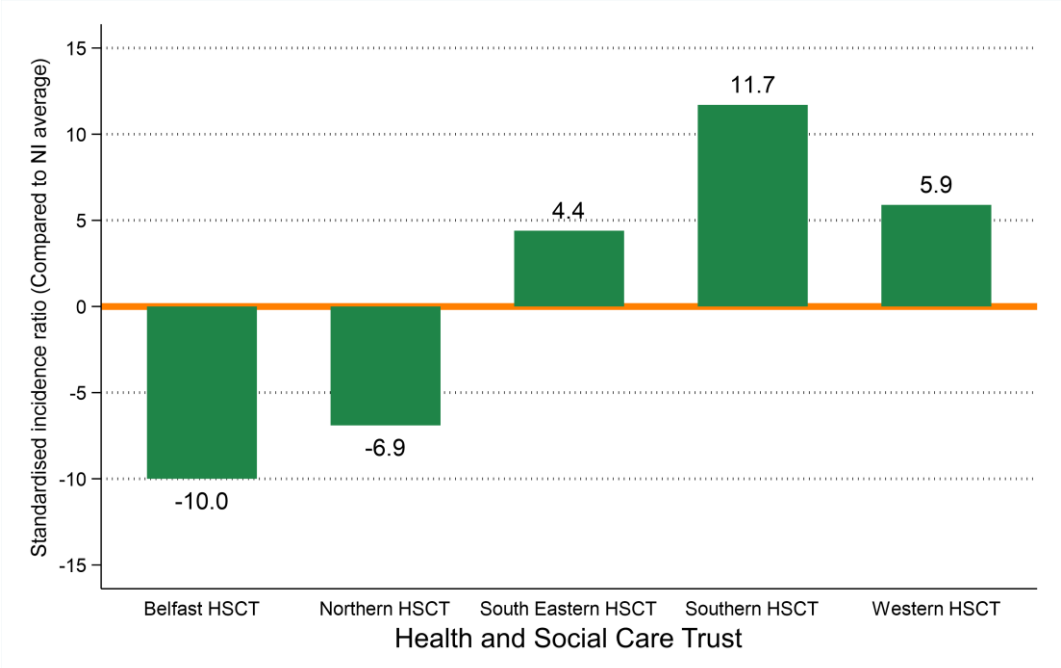
INCIDENCE BY HEALTH AND SOCIAL CARE TRUST

- The number of cases of cancer among young adults diagnosed during 2013-2022 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 3: Number of cases of cancer among young adults diagnosed in 2013-2022 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	**589**	**59**	**277**	**28**	**312**	**31**
	.	.	.	.	.	.
Belfast HSCT	121	12	57	6	64	6
Northern HSCT	135	14	65	7	70	7
South Eastern HSCT	106	11	50	5	56	6
Southern HSCT	128	13	55	6	73	7
Western HSCT	99	10	50	5	49	5
Unknown	0	0	0	0	0	0

Figure 6: Standardised incidence ratio comparing Health and Social Care Trust to Northern Ireland for cancer among young adults diagnosed in 2013-2022



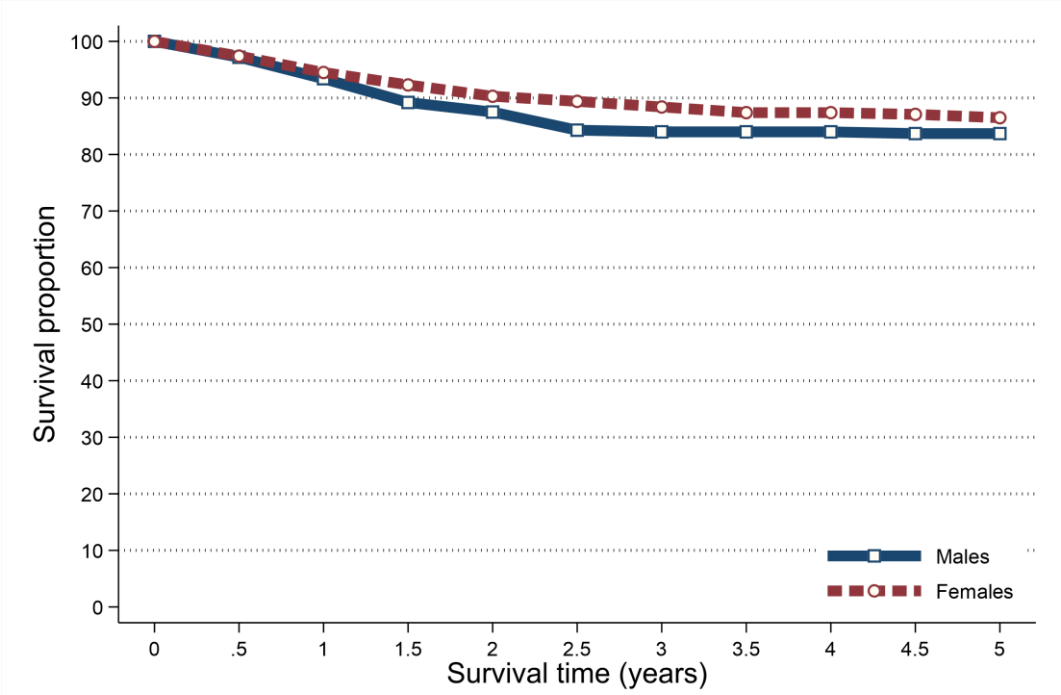
SURVIVAL

- 93.9% of patients aged 15 to 24 were alive one year and 85.0% were alive five years from a cancer diagnosis in 2008-2017. (observed survival)
- Among young adults net survival (NS), which removes the effect of deaths from causes unrelated to cancer, was 94.0% one year and 85.2% five years from a cancer diagnosis in 2008-2017.
- Five-year survival (NS) from cancer among young adults diagnosed in 2008-2017 was 83.7% among men and 86.5% among women.

Table 4: Survival from cancer among young adults diagnosed in 2008-2017

Time since diagnosis	All persons		Male		Female	
	Observed survival	Net survival	Observed survival	Net survival	Observed survival	Net survival
6 months	97.3%	97.3%	97.2%	97.2%	97.4%	97.4%
One year	93.9%	94.0%	93.4%	93.4%	94.5%	94.5%
Two years	88.9%	89.0%	87.4%	87.5%	90.3%	90.3%
Five years	85.0%	85.2%	83.5%	83.7%	86.4%	86.5%

Figure 7: Net survival from cancer among young adults for patients diagnosed in 2008-2017



Observed survival examines the time between diagnosis and death from any cause, however, due to the inclusion of non-cancer deaths it may not fully reflect how changes in cancer care impact survival from cancer.

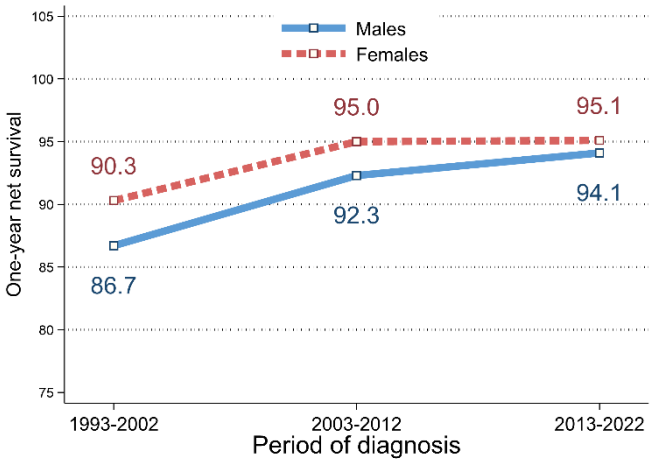
Net survival provides an estimate of patient survival which has been adjusted to take account of deaths unrelated to cancer. It is more widely used to assess the impact of changes in cancer care on patient survival.

SURVIVAL TRENDS

ONE-YEAR NET SURVIVAL

- Between 2003-2012 and 2013-2022 there was no significant change in one-year survival (NS) from cancer among young adults.
- Between 1993-2002 and 2013-2022 there was a significant increase from 88.5% to 94.7% in one-year survival (NS) from cancer among young adults. This increase was significant for males (86.7% to 94.1%) but not females.

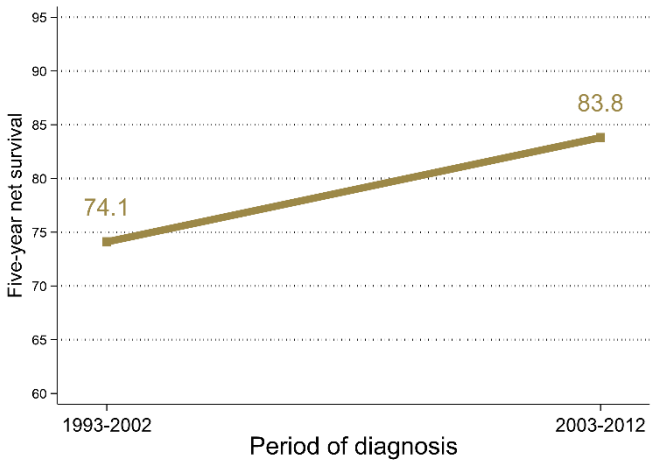
Figure 8: Trends in one-year net survival from cancer among young adults in 1993-2022

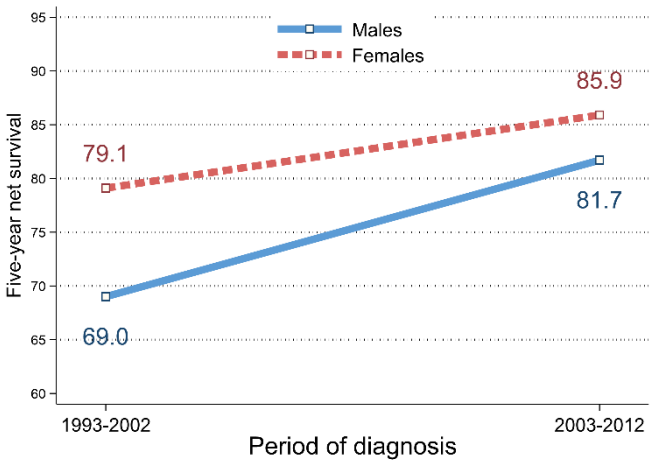


FIVE-YEAR NET SURVIVAL

- Between 1993-2002 and 2003-2012 there was a significant increase from 74.1% to 83.8% in five-year survival (NS) from cancer among young adults. This increase was significant for males (69.0% to 81.7%) but not females.

Figure 9: Trends in five-year net survival from cancer among young adults in 1993-2012

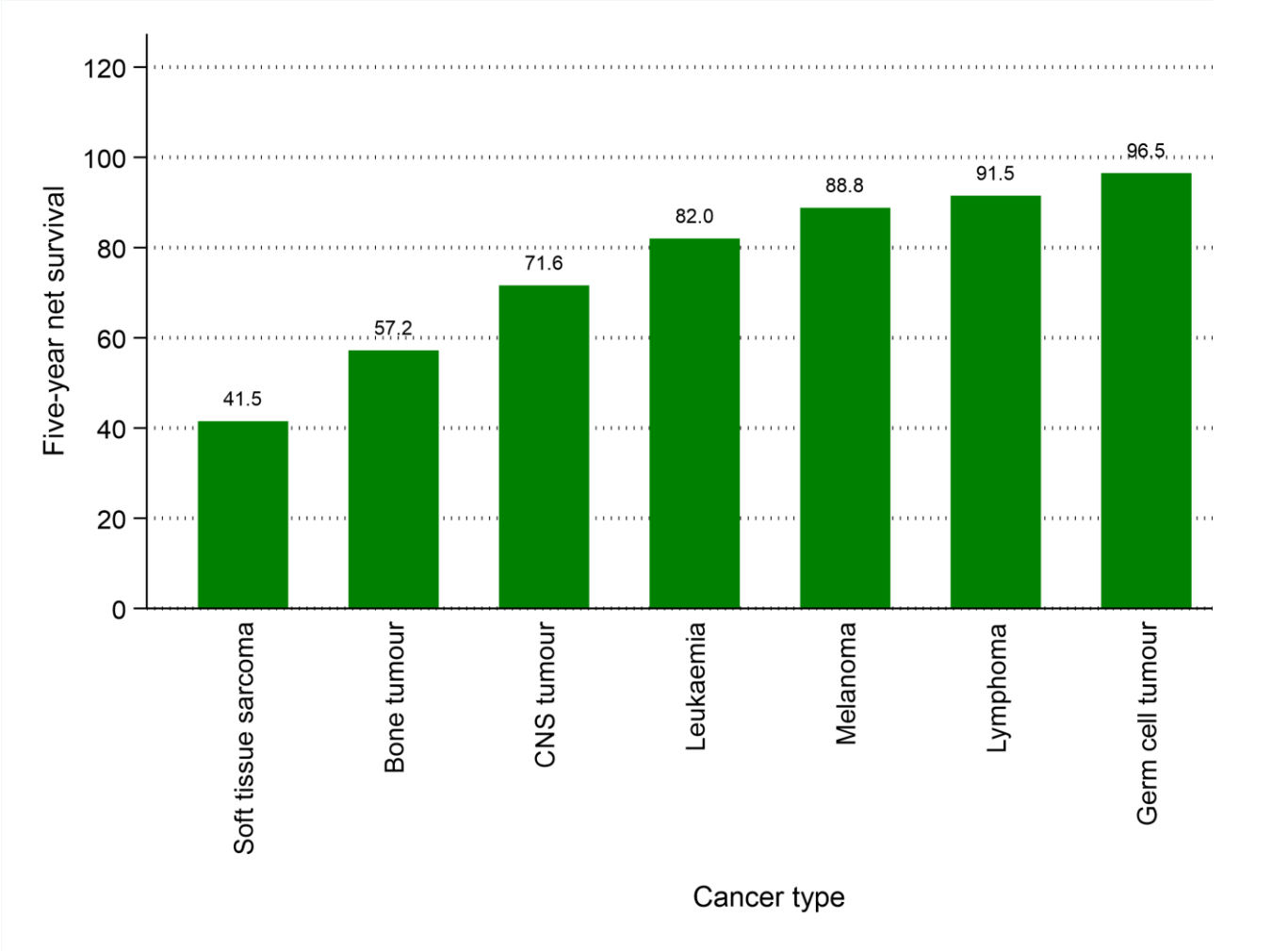




SURVIVAL BY CANCER TYPE

- Five-year survival (NS) for patients aged 15 to 24 and diagnosed in 2008-2017 ranged from 96.5% for germ cell tumour, trophoblastic tumour, and neoplasm of gonad to 41.5% for soft tissue and other extraosseous sarcoma.
- In particular five-year survival (NS) for the most common cancer types was 88.8% for other malignant epithelial neoplasm and malignant melanoma, 91.5% for lymphoma and reticuloendothelial neoplasm, 96.5% for germ cell tumour, trophoblastic tumour, and neoplasm of gonad and 82.0% for leukaemia, myeloproliferative disease, and myelodysplastic disease.

Figure 10: Five-year net survival from cancer among young adults diagnosed in 2008-2017 by cancer type



Note: CNS tumour = Central nervous system and miscellaneous intracranial and intraspinal neoplasm, Germ cell tumour = Germ cell tumour, trophoblastic tumour, and neoplasm of gonad, Leukaemia = Leukaemia, myeloproliferative disease, and myelodysplastic disease, Lymphoma = Lymphoma and reticuloendothelial neoplasm, Melanoma = Other malignant epithelial neoplasm and malignant melanoma, Soft tissue sarcoma = Soft tissue and other extraosseous sarcoma.

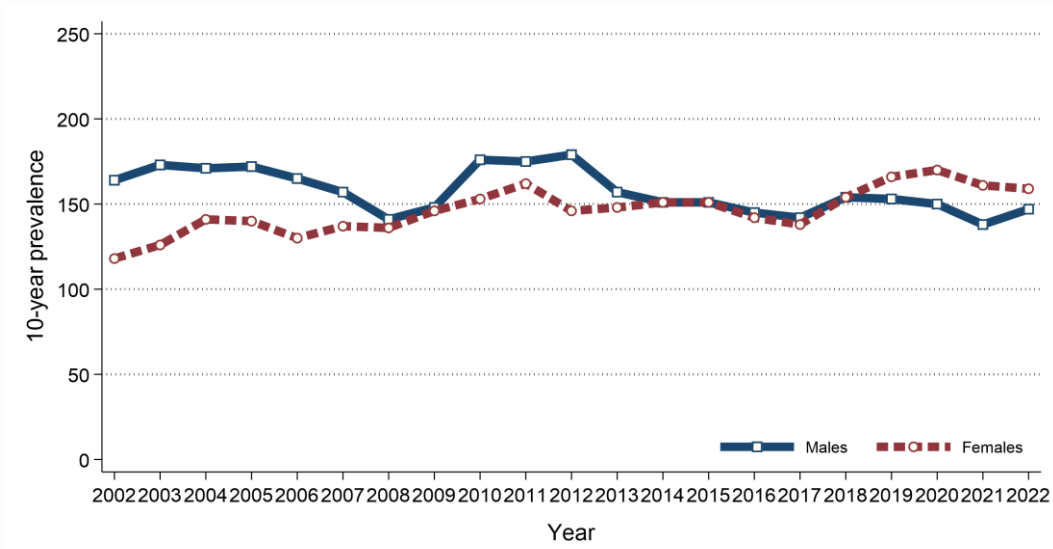
PREVALENCE

- At the end of 2022, there were 540 people (Males: 276; Females: 264) living with cancer aged 15 to 24 who had been diagnosed with the disease during 1998-2022.
- Of these 11.3% had been diagnosed in the previous year (one-year prevalence) and 56.7% in the previous 10 years (ten-year prevalence).
- At the end of 2022 the most prevalent cancer types were leukaemia, myeloproliferative disease, and myelodysplastic disease (137) and lymphoma and reticuloendothelial neoplasm (101).

PREVALENCE TRENDS

- 10-year prevalence of cancer among males aged 15 to 24 increased between 2017 and 2022 by 3.5% from 142 survivors to 147 survivors.
- 10-year prevalence of cancer among females aged 15 to 24 increased between 2017 and 2022 by 15.2% from 138 survivors to 159 survivors.

Figure 11: Trends in 10-year prevalence of cancer among young adults in 2002-2022

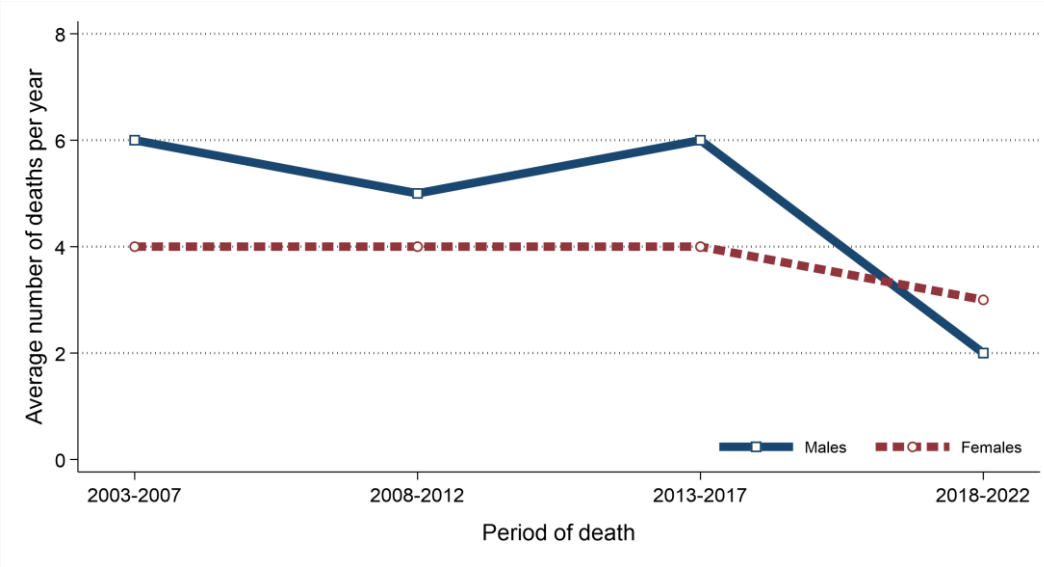


Year	10-year prevalence	
	Males	Females
2013	157	148
2014	151	151
2015	151	151
2016	145	142
2017	142	138
2018	154	154
2019	153	166
2020	150	170
2021	138	161
2022	147	159

MORTALITY

- There were 74 deaths from cancer among young adults (excluding non-melanoma skin cancer) during 2013-2022 in Northern Ireland. On average this was 7 deaths per year.
- During this period 50.0% of cancer deaths among young adults were among women (Male deaths: 37, Female deaths: 37). On average there were 4 male and 4 female deaths from young adult cancer per year.
- The number of deaths from young adult cancer among males decreased between 2013-2017 and 2018-2022 by 67.9% from 28 deaths (6 deaths per year) to 9 deaths (2 deaths per year).
- The number of deaths from young adult cancer among females decreased between 2013-2017 and 2018-2022 by 23.8% from 21 deaths (4 deaths per year) to 16 deaths (3 deaths per year).

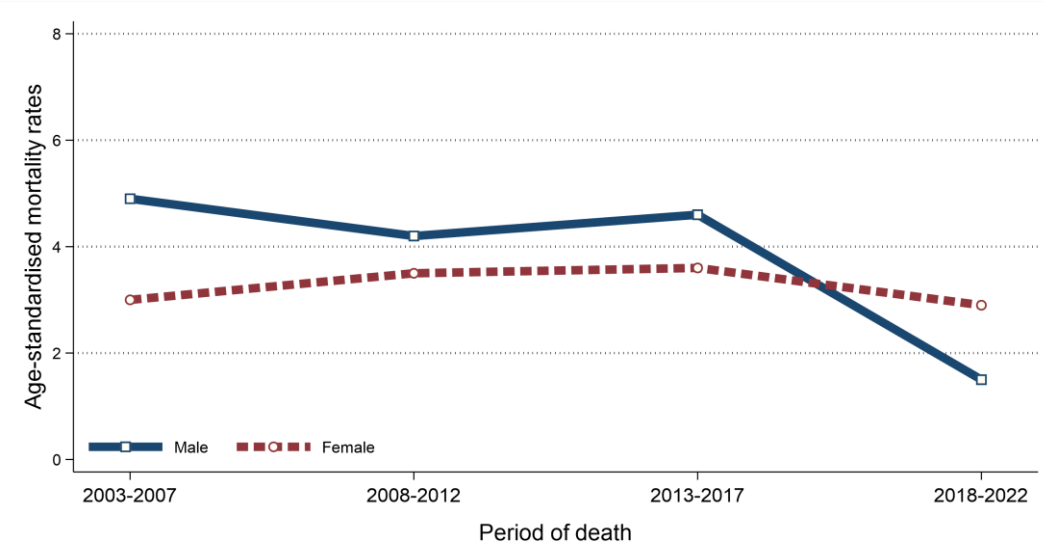
Figure 12: Trends in average number of deaths per year from cancer among young adults from 2003 to 2022



Period of death	Average number of deaths per year	
	Male	Female
2003-2007	6	4
2008-2012	5	4
2013-2017	6	4
2018-2022	2	3

- Male age-standardised young adult cancer mortality rates decreased between 2013-2017 and 2018-2022 by 67.4% from 4.6 to 1.5 deaths per 100,000 males aged 15 to 24. This change was statistically significant.
- Female age-standardised young adult cancer mortality rates decreased between 2013-2017 and 2018-2022 by 19.4% from 3.6 to 2.9 deaths per 100,000 females aged 15 to 24. This change was not statistically significant.

Figure 13: Trends in mortality rates of cancer among young adults 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#/II

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. cancer among young adults 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. cancer among young adults 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.

Patient survival is evaluated using two measures. Observed survival examines the time between diagnosis and death from any cause. It thus represents what cancer patients experience, however, due to the inclusion of non-cancer deaths (e.g. heart disease), it may not reflect how changes in cancer care impact survival from cancer. Thus age-standardised net survival is also examined. This measure provides an estimate of patient survival which has been adjusted to take account of deaths unrelated to cancer. It also assumes a standard age distribution thereby removing the impact of changes in the age distribution of cancer patients on changes in survival over time. While this measure is hypothetical, as it assumes patients can only die from cancer related factors, it is a better indicator of the impact of changes in cancer care on patient survival.