Thyroid cancer

1993-2022

(ICD10 codes: C73)

Northern Ireland Cancer Registry

Northern Ireland Cancer Registry, 2025

An official statistics publication

About this report

Contents

This report includes information on incidence of thyroid 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 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, 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. Thyroid cancer: 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

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Acknowledgements

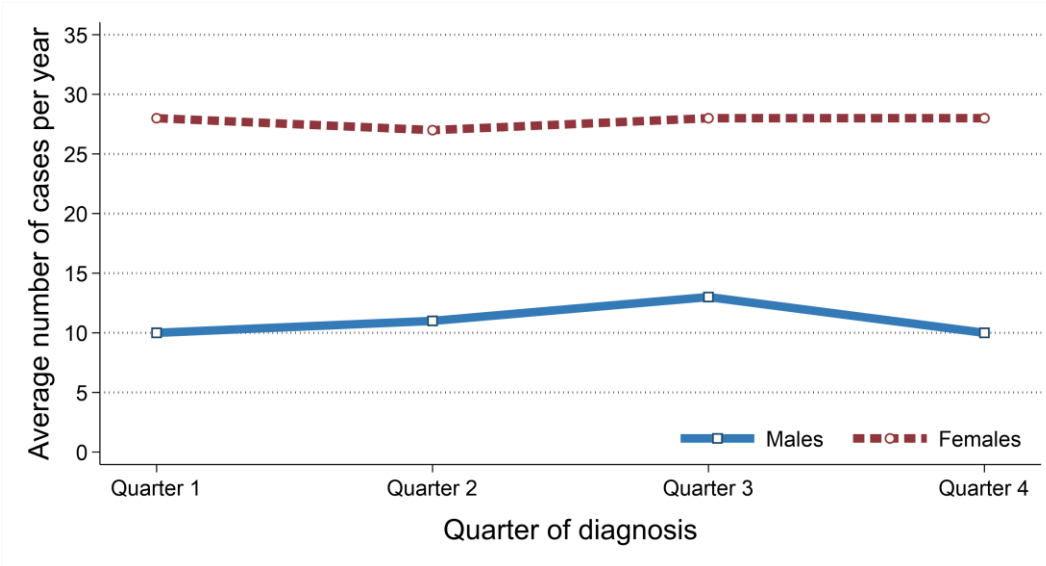
The Northern Ireland Cancer Registry (NICR) uses data provided by patients and collected by the health service as part of their care and support.

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

INCIDENCE

- There were 772 cases of thyroid cancer diagnosed during 2018-2022 in Northern Ireland. On average this was 154 cases per year.
- During this period 71.6% of thyroid cancer cases were among women (Male cases: 219, Female cases: 553). On average there were 44 male and 111 female cases of thyroid cancer per year.
- The most common diagnosis month during 2018-2022 was September among males with 5 cases per year and March, November, September and May among females with 11 cases per year.

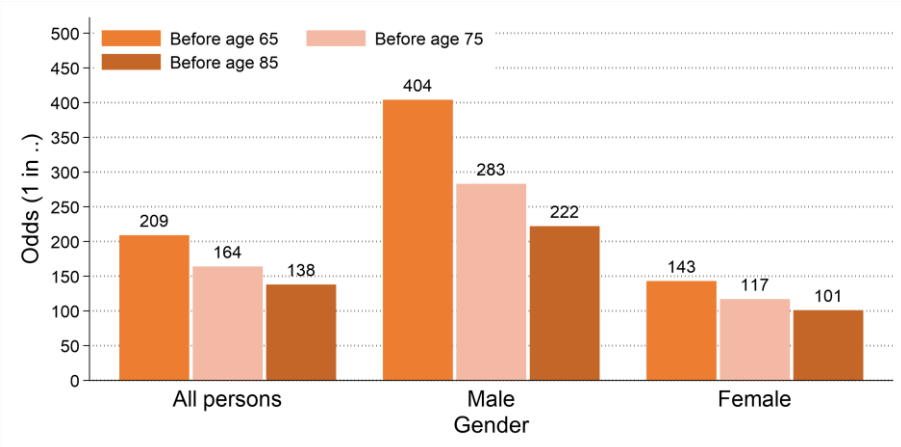
Figure 1: Average number of cases of thyroid cancer per year in 2018-2022 by quarter of diagnosis



Quarter of diagnosis	Average number of cases per year	
	Males	Females
Quarter 1	10	28
Quarter 2	11	27
Quarter 3	13	28
Quarter 4	10	28

- Thyroid cancer made up 0.8% of all male and 2.2% of all female cancer cases (excluding non-melanoma skin cancer).
- The thyroid cancer incidence rates for each gender were 4.7 cases per 100,000 males and 11.5 cases per 100,000 females.
- The odds of developing thyroid cancer before age 85 was 1 in 222 for men and 1 in 101 for women.

Figure 2: Odds of developing thyroid cancer in 2018-2022



INCIDENCE BY AGE

- The median age of patients diagnosed with thyroid cancer during 2018-2022 was 50 years (Males: 56, Females: 47).
- The risk of developing thyroid cancer varied by age, with 11.4% of men and 8.1% of women diagnosed with thyroid cancer aged 75 and over at diagnosis.
- In contrast, 60.1% of patients diagnosed with thyroid cancer were aged 0 to 54 at diagnosis.

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

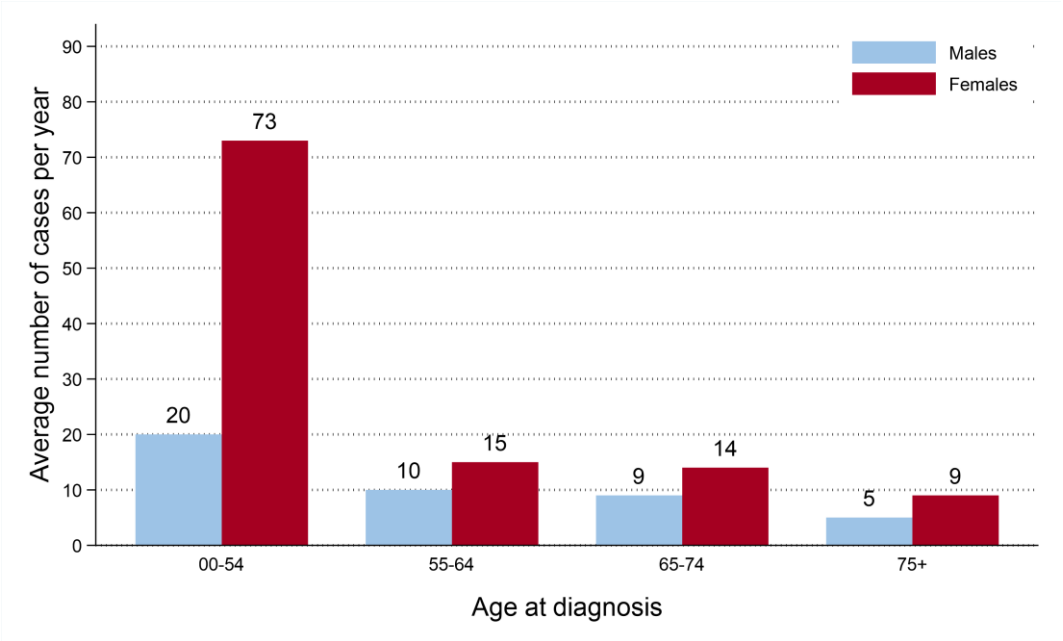
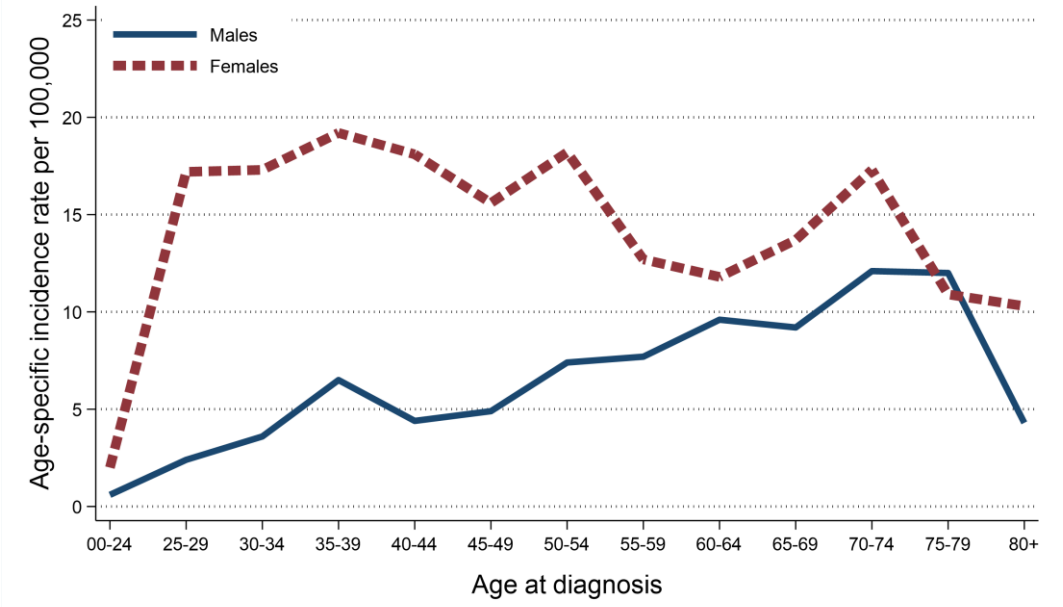


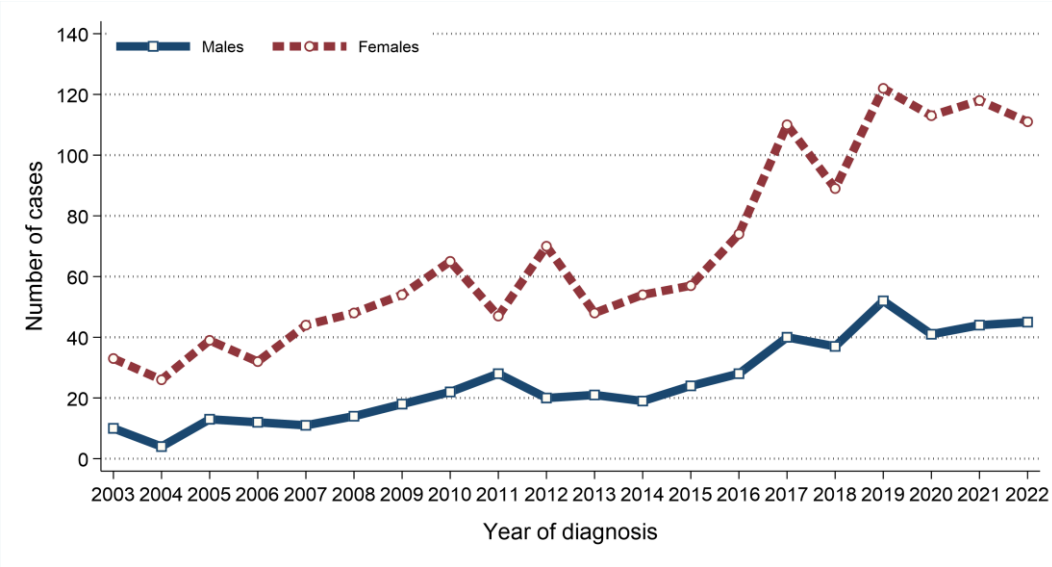
Figure 4: Age-specific incidence rates of thyroid cancer in 2018-2022



INCIDENCE TRENDS

- The number of cases of thyroid cancer among males increased between 2013-2017 and 2018-2022 by 65.9% from 132 cases (26 cases per year) to 219 cases (44 cases per year).
- The number of cases of thyroid cancer among females increased between 2013-2017 and 2018-2022 by 61.2% from 343 cases (69 cases per year) to 553 cases (111 cases per year).

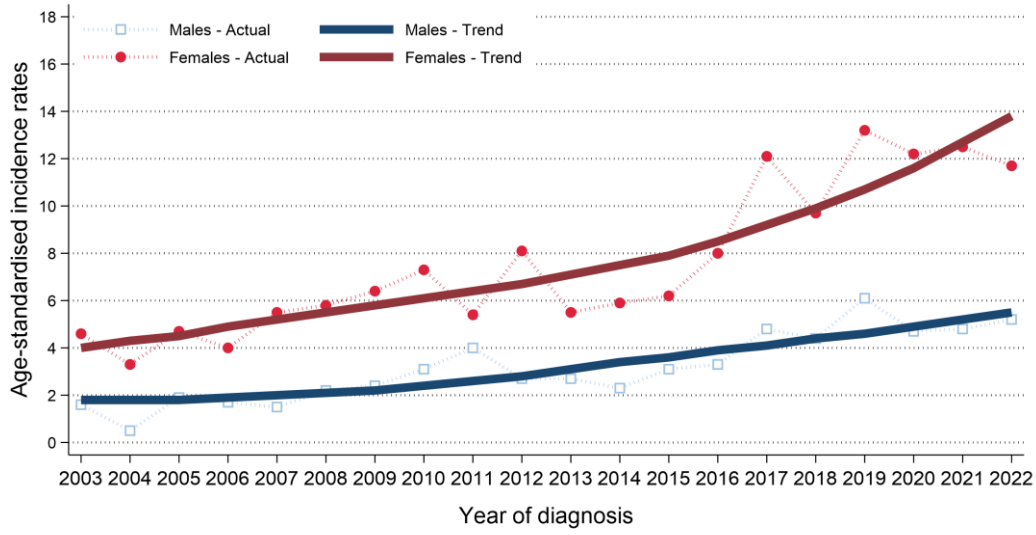
Figure 5: Trends in number of cases of thyroid cancer diagnosed from 2003 to 2022



Year of diagnosis	Number of cases	
	Males	Females
2013	21	48
2014	19	54
2015	24	57
2016	28	74
2017	40	110
2018	37	89
2019	52	122
2020	41	113
2021	44	118
2022	45	111

- Male age-standardised thyroid cancer incidence rates increased between 2013-2017 and 2018-2022 by 56.3% from 3.2 to 5.0 cases per 100,000 males. This change was statistically significant.
- Female age-standardised thyroid cancer incidence rates increased between 2013-2017 and 2018-2022 by 58.7% from 7.5 to 11.9 cases per 100,000 females. This change was statistically significant.

Figure 6: Trends in incidence rates of thyroid cancer 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).

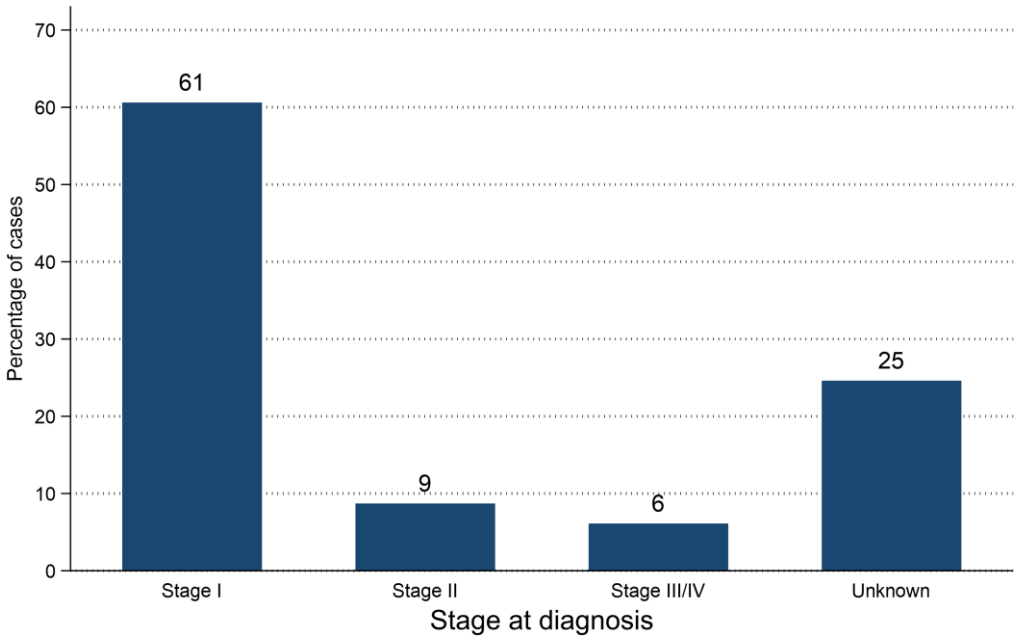
INCIDENCE BY STAGE AT DIAGNOSIS

- During 2018-2022 75.4% of thyroid cancer cases had a stage assigned.
- 60.6% of thyroid cancer cases were diagnosed at Stage I. (80.4% of staged cases)
- 6.1% of thyroid cancer cases were diagnosed at Stage III/IV. (8.1% of staged cases)

Table 1: Number of cases of thyroid cancer diagnosed in 2018-2022 by stage at diagnosis

Stage at diagnosis	All persons	
	Total cases in period	Average cases per year
All stages	**772**	**154**
	.	.
Stage I	468	94
Stage II	67	13
Stage III/IV	47	9
Unknown	190	38

Figure 7: Proportion of cases of thyroid cancer diagnosed in 2018-2022 by stage at diagnosis



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).

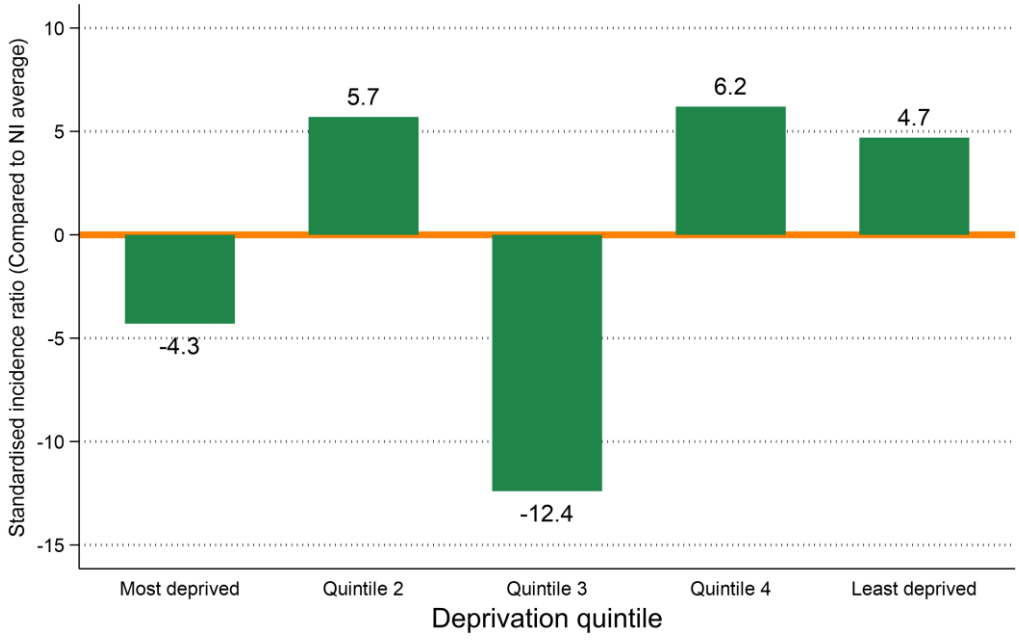
INCIDENCE BY DEPRIVATION

- The number of cases of thyroid cancer 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 2: Number of cases of thyroid cancer 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	**772**	**154**	**219**	**44**	**553**	**111**
	.	.	.	.	.	.
Most deprived	133	27	33	7	100	20
Quintile 2	165	33	47	9	118	24
Quintile 3	142	28	38	8	104	21
Quintile 4	173	35	51	10	122	24
Least deprived	159	32	50	10	109	22
Unknown	0	0	0	0	0	0

Figure 8: Standardised incidence ratio comparing deprivation quintile to Northern Ireland for thyroid cancer diagnosed in 2018-2022



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.

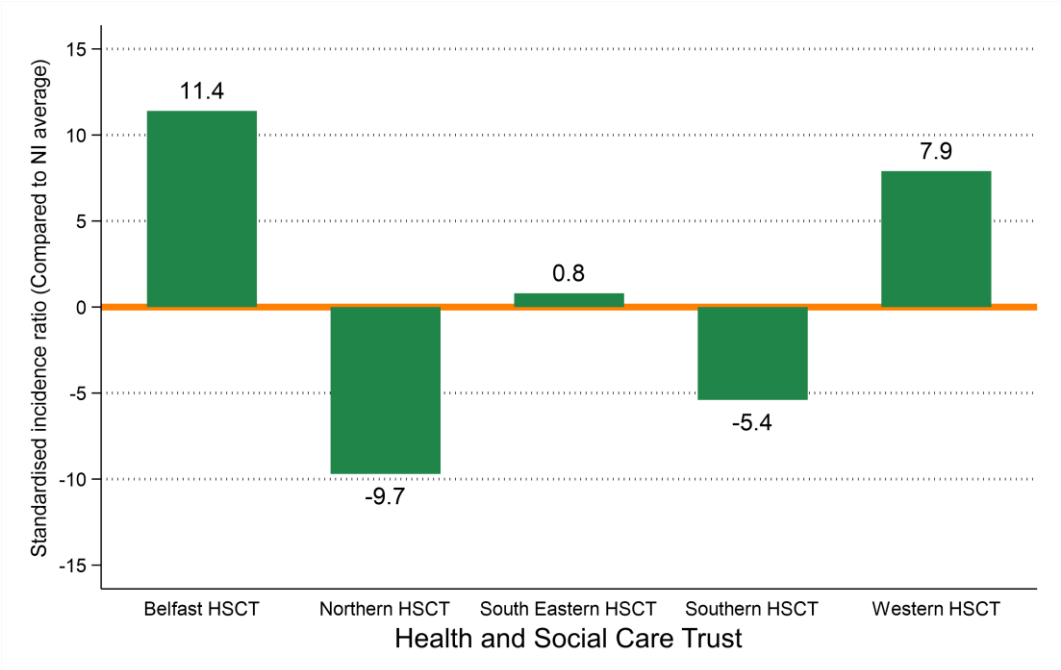
INCIDENCE BY HEALTH AND SOCIAL CARE TRUST

- The number of cases of thyroid cancer 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 3: Number of cases of thyroid cancer 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	**772**	**154**	**219**	**44**	**553**	**111**
	.	.	.	.	.	.
Belfast HSCT	163	33	49	10	114	23
Northern HSCT	178	36	56	11	122	24
South Eastern HSCT	153	31	48	10	105	21
Southern HSCT	146	29	38	8	108	22
Western HSCT	132	26	28	6	104	21
Unknown	0	0	0	0	0	0

Figure 9: Standardised incidence ratio comparing Health and Social Care Trust to Northern Ireland for thyroid cancer diagnosed in 2018-2022



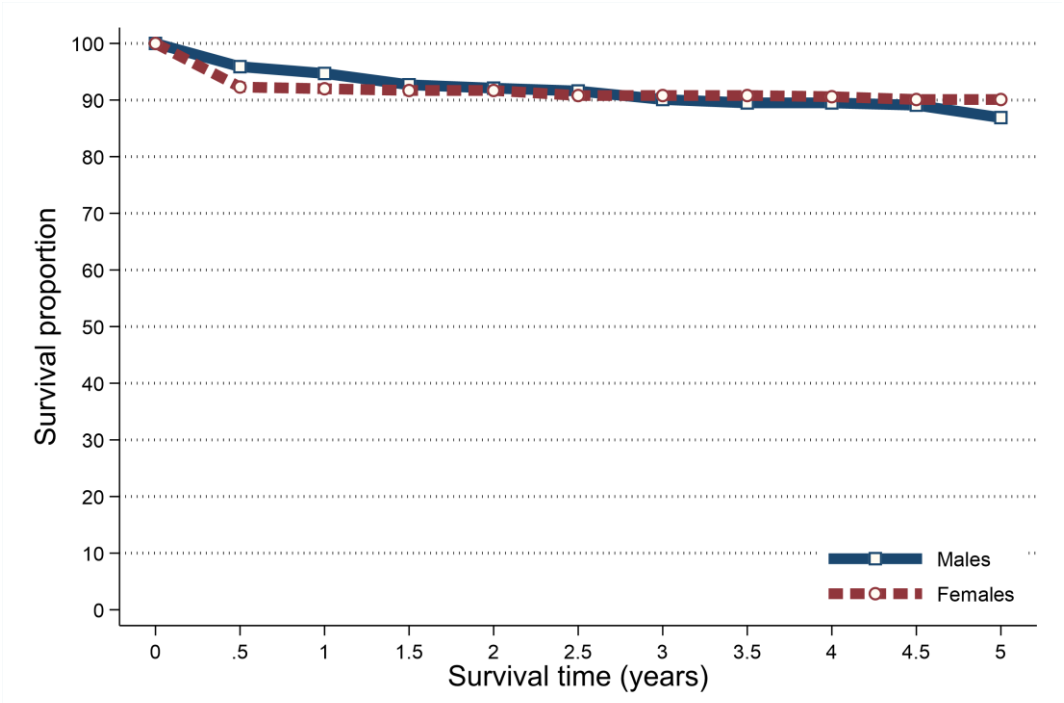
SURVIVAL

- 94.1% of patients were alive one year and 88.2% were alive five years from a thyroid cancer diagnosis in 2013-2017. (observed survival)
- Age-standardised net survival (ASNS), which removes the effect of deaths from causes unrelated to cancer, was 92.7% one year and 89.2% five years from a thyroid cancer diagnosis in 2013-2017.
- Five-year survival (ASNS) for thyroid cancer patients diagnosed in 2013-2017 was 86.9% among men and 90.1% among women.

Table 4: Survival from thyroid cancer for patients diagnosed in 2013-2017

Time since diagnosis	All persons		Male		Female	
	Observed survival	Age-standardised net survival	Observed survival	Age-standardised net survival	Observed survival	Age-standardised net survival
6 months	94.8%	93.3%	96.0%	95.9%	94.3%	92.3%
One year	94.1%	92.7%	94.4%	94.7%	94.0%	92.0%
Two years	92.6%	91.8%	91.2%	92.1%	93.1%	91.7%
Five years	88.2%	89.2%	84.0%	86.9%	89.8%	90.1%

Figure 10: Age-standardised net survival from thyroid cancer for patients diagnosed in 2013-2017



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.

Age-standardised 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.

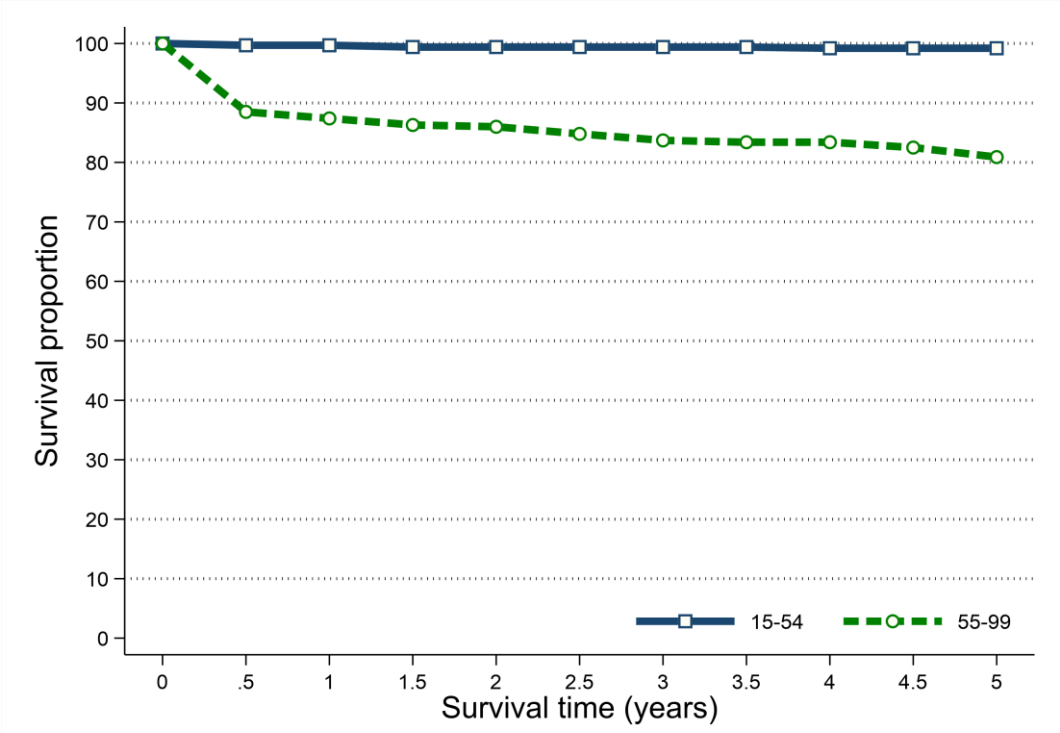
SURVIVAL BY AGE

- Survival from thyroid cancer among patients diagnosed during 2013-2017 was related to age with better five-year survival among younger age groups.
- Five-year net survival ranged from 99.2% among patients aged 15 to 54 at diagnosis to 80.9% among those aged 55 to 99.

Table 5: Net survival from thyroid cancer for patients diagnosed in 2013-2017 by age at diagnosis

Age group	All persons	
	One-year	Five-years
15 to 54	99.7%	99.2%
55 to 99	87.4%	80.9%

Figure 11: Net survival from thyroid cancer for patients diagnosed in 2013-2017 by age at diagnosis

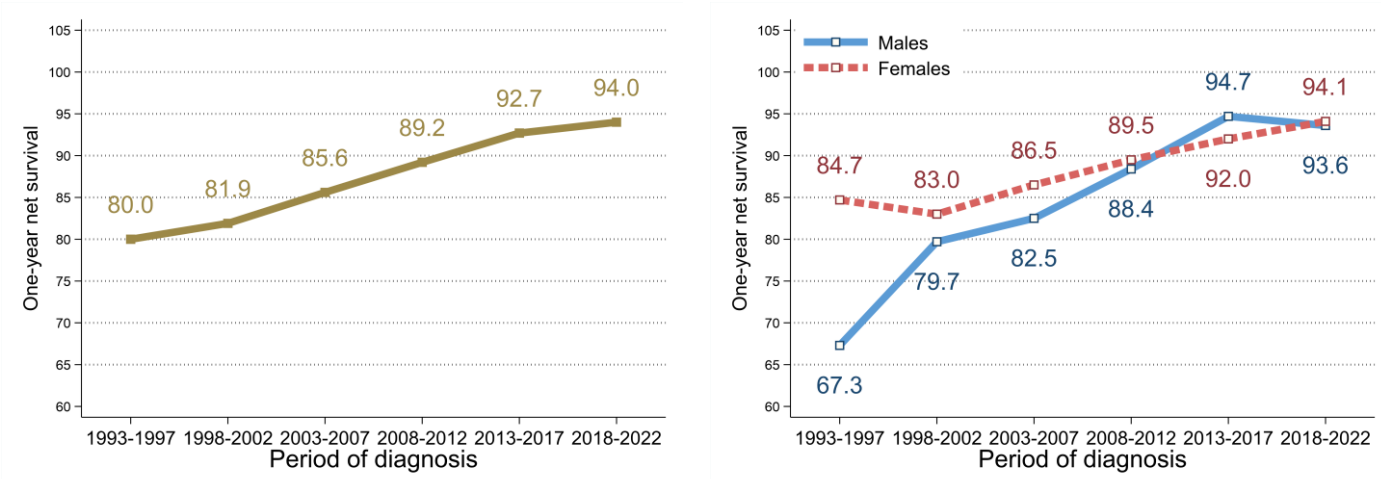


SURVIVAL TRENDS

ONE-YEAR NET SURVIVAL

- Between 2013-2017 and 2018-2022 there was no significant change in one-year survival (ASNS) from thyroid cancer.
- Compared to 1993-1997 one-year survival (ASNS) from thyroid cancer in 2018-2022 increased significantly from 80.0% to 94.0%. This increase was significant for males (67.3% to 93.6%) but not females.

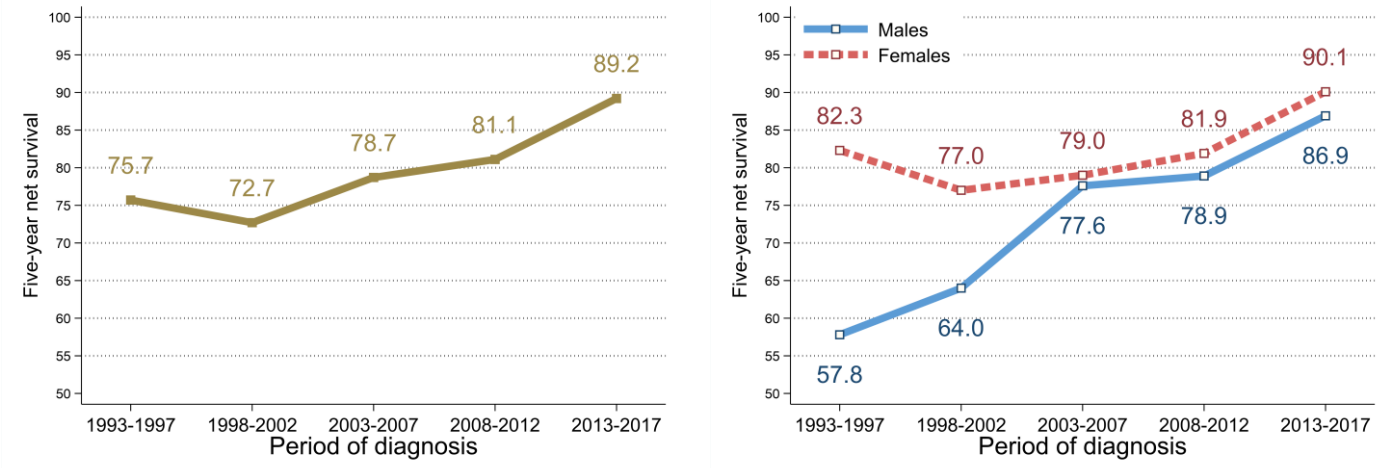
Figure 12: Trends in one-year age-standardised net survival from thyroid cancer in 1993-2022



FIVE-YEAR NET SURVIVAL

- Between 2008-2012 and 2013-2017 there was no significant change in five-year survival (ASNS) from thyroid cancer.
- Compared to 1993-1997 five-year survival (ASNS) from thyroid cancer in 2013-2017 did not change significantly. However, there was a significant increase between the two time periods for males (57.8% to 86.9%) but not females.

Figure 13: Trends in five-year age-standardised net survival from thyroid cancer in 1993-2017



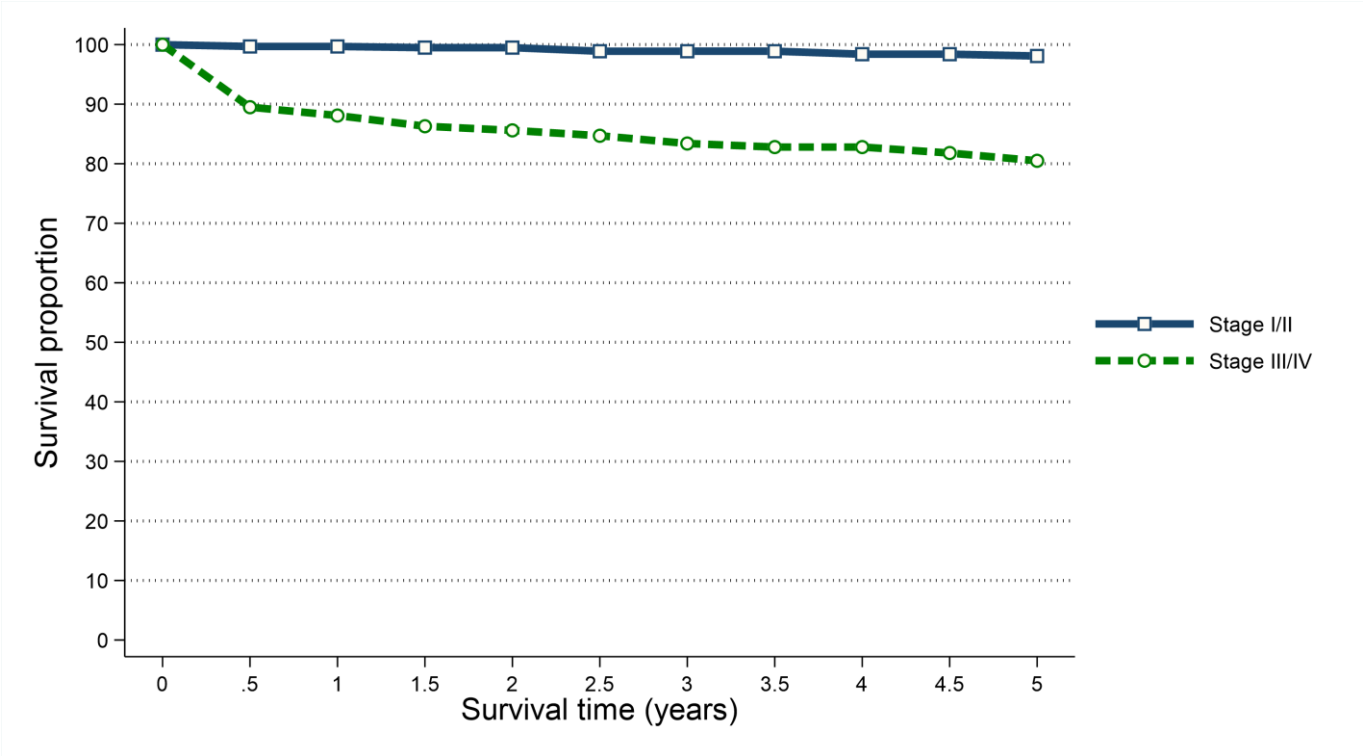
SURVIVAL BY STAGE

- Survival from thyroid cancer among patients diagnosed during 2013-2017 was strongly related to stage with better five-year survival among those diagnosed at earlier stages.
- Five-year survival (ASNS) ranged from 98.1% among patients diagnosed at Stage I/II to 80.5% among those diagnosed at Stage III/IV.

Table 6: Age-standardised net survival from thyroid cancer for patients diagnosed in 2013-2017 by stage at diagnosis

Stage at diagnosis	All persons	
	One-year	Five-years
Stage I/II	99.7%	98.1%
Stage III/IV	88.1%	80.5%
Unknown	82.7%	74.1%

Figure 14: Age-standardised net survival from thyroid cancer for patients diagnosed in 2013-2017 by stage at diagnosis



PREVALENCE

- At the end of 2022, there were 1,594 people (Males: 389; Females: 1,205) living with thyroid cancer who had been diagnosed with the disease during 1998-2022.
- Of these 8.8% had been diagnosed in the previous year (one-year prevalence) and 67.6% in the previous 10 years (ten-year prevalence).
- 49.0% of thyroid cancer survivors were aged 55 and over at the end of 2022.

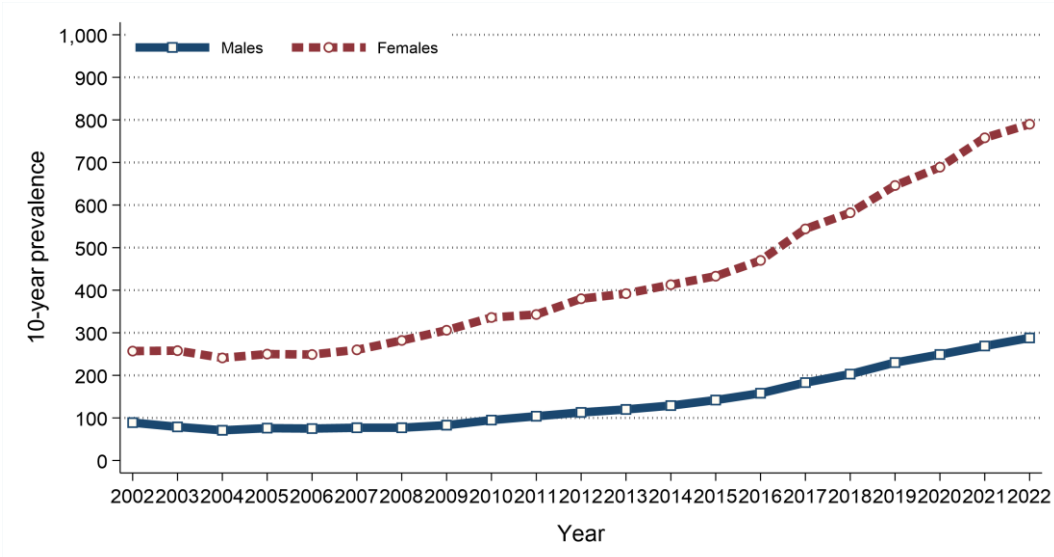
Table 7: 25-year prevalence of thyroid cancer by age at end of 2022

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	1,594	141	548	389	516
	0 to 54	813	84	316	211	202
	55 and over	781	57	232	178	314
Male	All ages	389	39	148	101	101
	0 to 54	153	19	60	43	31
	55 and over	236	20	88	58	70
Female	All ages	1,205	102	400	288	415
	0 to 54	660	65	256	168	171
	55 and over	545	37	144	120	244

PREVALENCE TRENDS

- 10-year prevalence of thyroid cancer among males increased between 2017 and 2022 by 57.4% from 183 survivors to 288 survivors.
- 10-year prevalence of thyroid cancer among females increased between 2017 and 2022 by 45.2% from 544 survivors to 790 survivors.

Figure 15: Trends in 10-year prevalence of thyroid cancer in 2002-2022



Year	10-year prevalence	
	Males	Females
2013	120	392
2014	129	413
2015	142	433
2016	158	470
2017	183	544
2018	203	582
2019	230	646
2020	249	689
2021	269	758
2022	288	790

MORTALITY

- There were 57 deaths from thyroid cancer during 2018-2022 in Northern Ireland. On average this was 11 deaths per year.
- During this period 56.1% of thyroid cancer deaths were among women (Male deaths: 25, Female deaths: 32). On average there were 5 male and 6 female deaths from thyroid cancer per year.
- Thyroid cancer deaths made up 0.2% of all male and 0.3% of all female cancer deaths.
- The median age of patients who died from thyroid cancer during 2018-2022 was 77 years (Males: 78, Females: 75).
- The risk of dying from thyroid cancer varied by age, with 29.8% of those who died from thyroid cancer aged 85 and over at death.
- In contrast, 15.8% of patients who died from thyroid cancer were aged 0 to 64 at death.

Figure 16: Average number of deaths from thyroid cancer per year in 2018-2022 by age at death

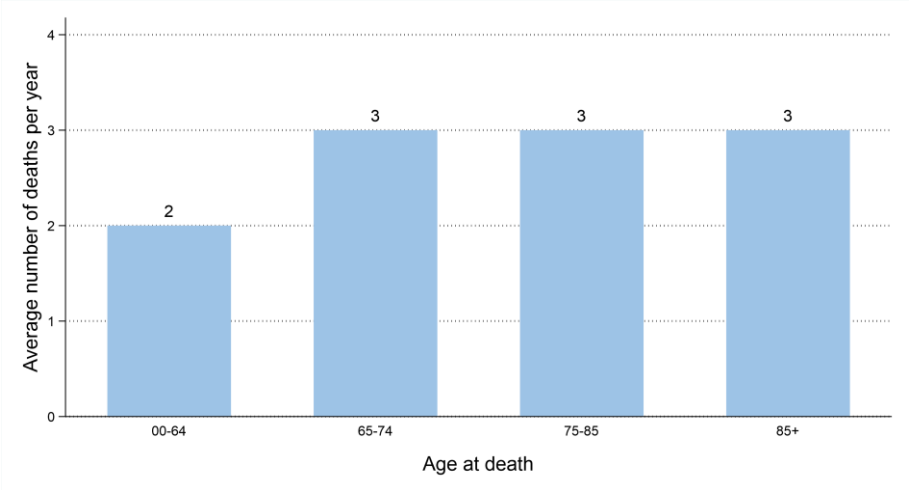
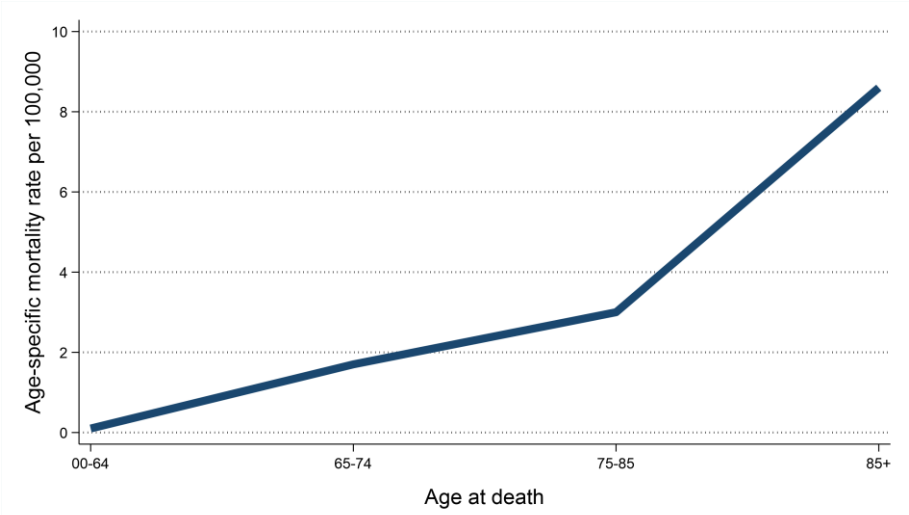


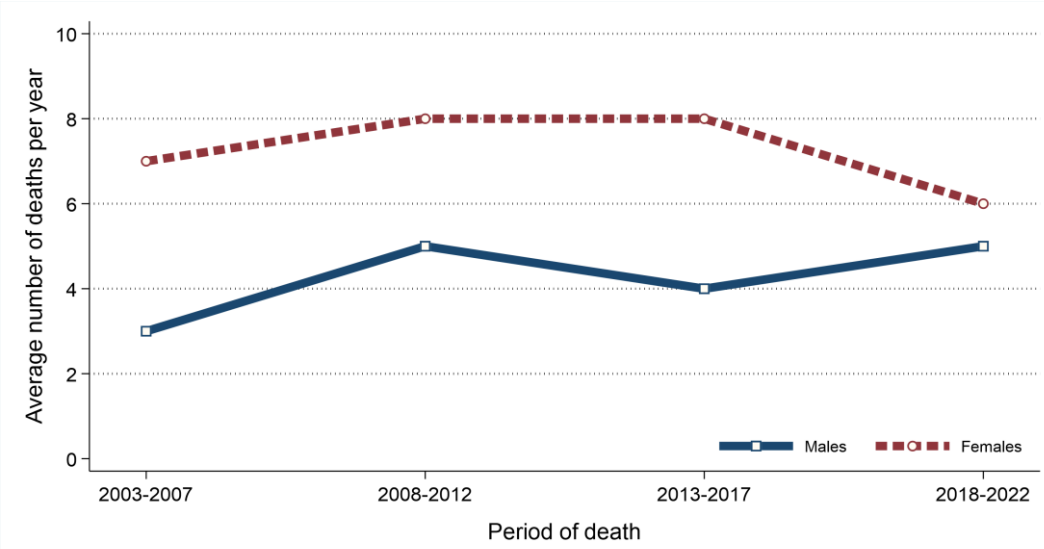
Figure 17: Age-specific mortality rates of thyroid cancer in 2018-2022



MORTALITY TRENDS

- The number of deaths from thyroid cancer among males increased between 2013-2017 and 2018-2022 by 13.6% from 22 deaths (4 deaths per year) to 25 deaths (5 deaths per year).
- The number of deaths from thyroid cancer among females decreased between 2013-2017 and 2018-2022 by 15.8% from 38 deaths (8 deaths per year) to 32 deaths (6 deaths per year).

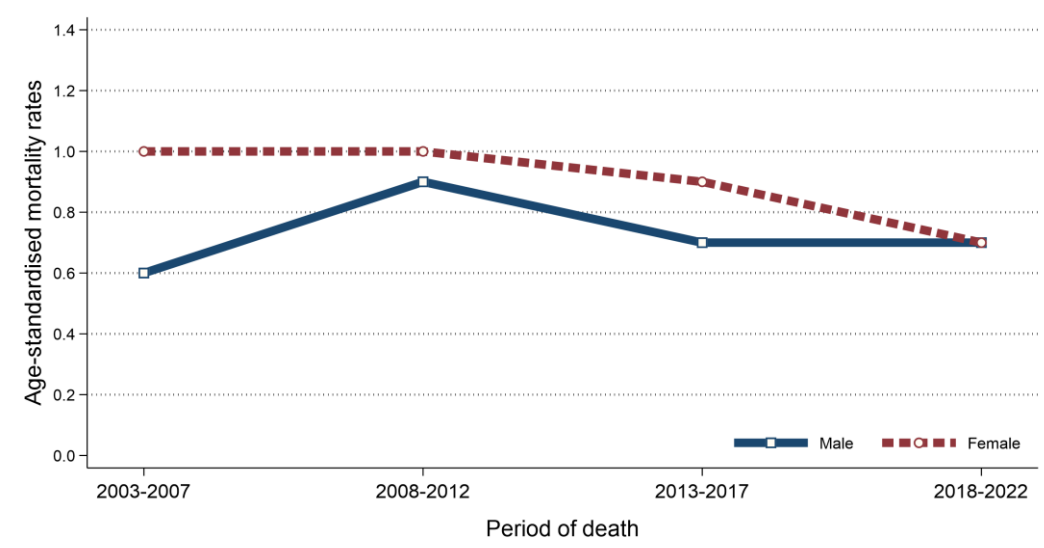
Figure 18: Trends in average number of deaths per year from thyroid cancer from 2003 to 2022



Period of death	Average number of deaths per year	
	Male	Female
2003-2007	3	7
2008-2012	5	8
2013-2017	4	8
2018-2022	5	6

- Male age-standardised thyroid cancer mortality rates did not change between 2013-2017 and 2018-2022 with 0.7 deaths per 100,000 males in each period of time.
- Female age-standardised thyroid cancer mortality rates decreased between 2013-2017 and 2018-2022 by 22.2% from 0.9 to 0.7 deaths per 100,000 females. This change was not statistically significant.

Figure 19: Trends in mortality rates of thyroid cancer 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. thyroid 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. thyroid 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 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.