Lung cancer

1993-2022

(Including trachea)

(ICD10 codes: C33-C34)

Northern Ireland Cancer Registry

Northern Ireland Cancer Registry, 2024

An official statistics publication

About this report

Contents

This report includes information on incidence of lung cancer (including trachea) 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 2024. Lung 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

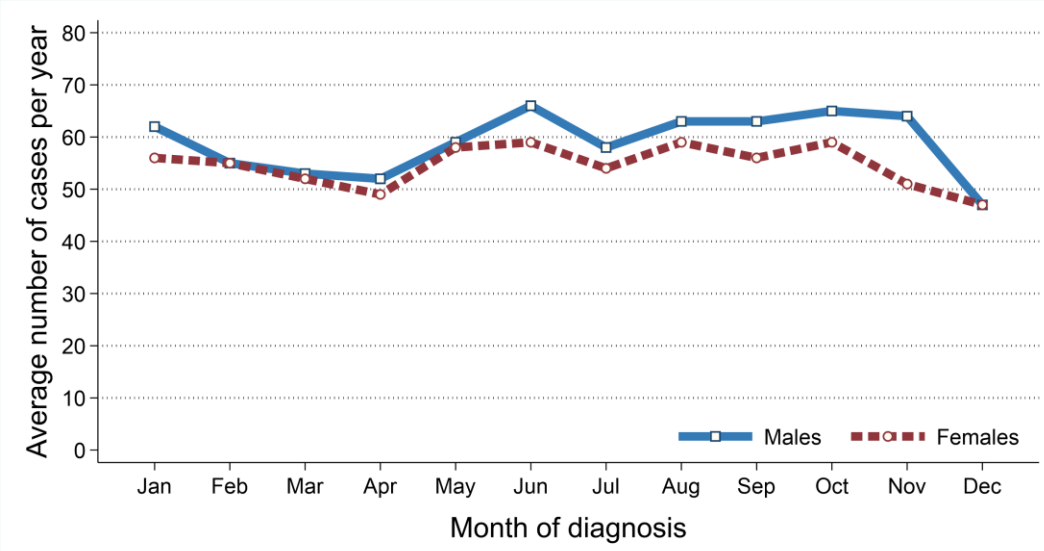
The Northern Ireland Cancer Registry (NICR) uses data provided by patients and collected by the health service as part of their care and support.

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

INCIDENCE

- There were 6,802 cases of lung cancer (including trachea) diagnosed during 2018-2022 in Northern Ireland. On average this was 1,360 cases per year.
- During this period 48.1% of lung cancer cases were among women (Male cases: 3,531, Female cases: 3,271). On average there were 706 male and 654 female cases of lung cancer per year.
- The most common diagnosis month during 2018-2022 was June among males with 66 cases per year and October, August and June among females with 59 cases per year.

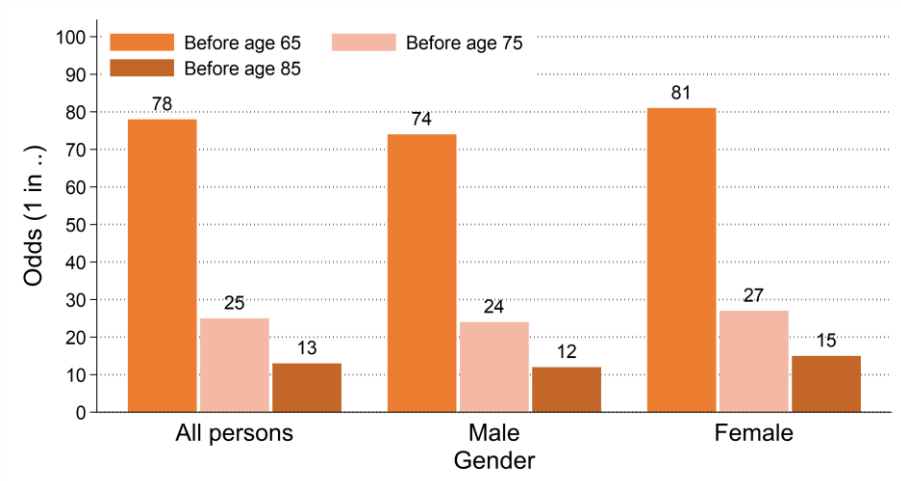
Figure 1: Average number of cases of lung cancer per year in 2018-2022 by month of diagnosis



Month of diagnosis	Average number of cases per year	
	Males	Females
January	62	56
February	55	55
March	53	52
April	52	49
May	59	58
June	66	59
July	58	54
August	63	59
September	63	56
October	65	59
November	64	51
December	47	47

- The lung cancer incidence rates for each gender were 75.6 cases per 100,000 males and 67.8 cases per 100,000 females.
- The odds of developing lung cancer before age 85 was 1 in 12 for men and 1 in 15 for women.

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



INCIDENCE BY AGE

- The median age of patients diagnosed with lung cancer during 2018-2022 was 73 years (Males: 73, Females: 72).
- The risk of developing lung cancer varied by age, with 42.8% of men and 42.6% of women diagnosed with lung cancer aged 75 and over at diagnosis.
- In contrast, 5.6% of patients diagnosed with lung cancer were aged 0 to 54 at diagnosis.

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

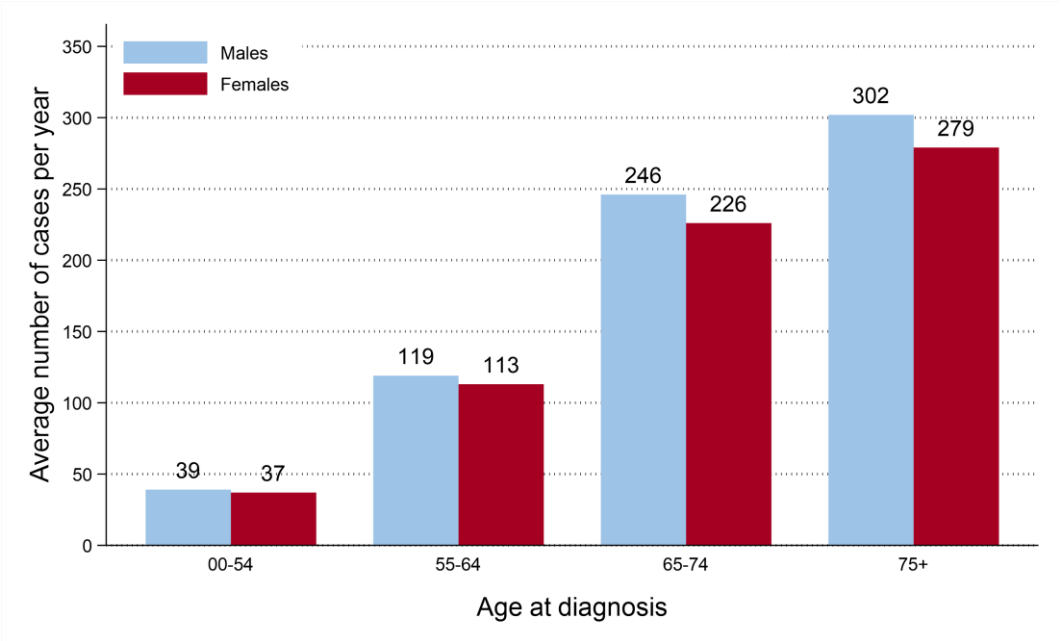
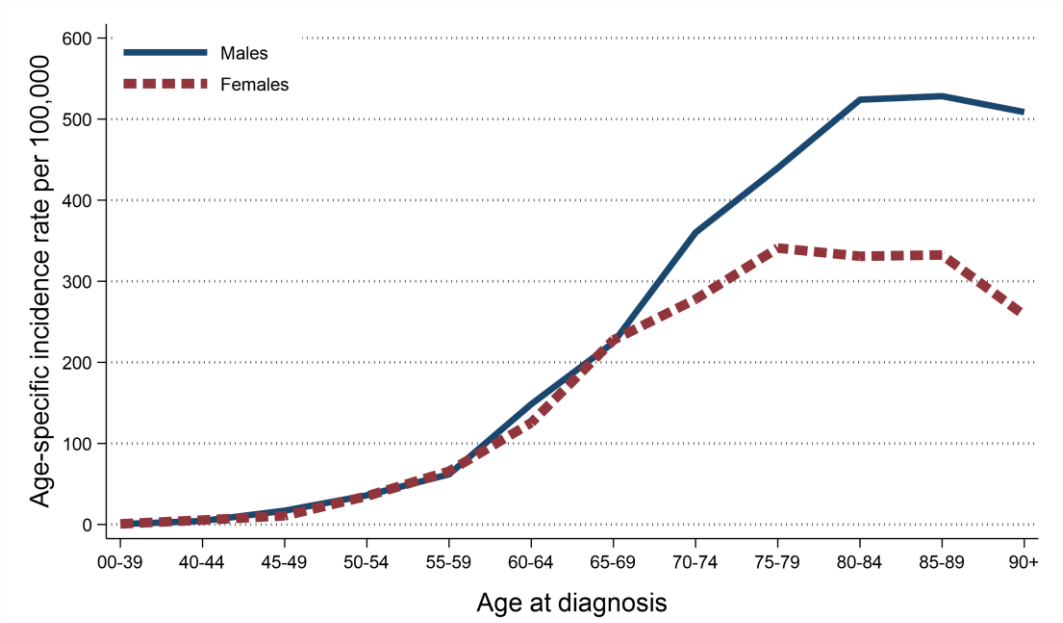


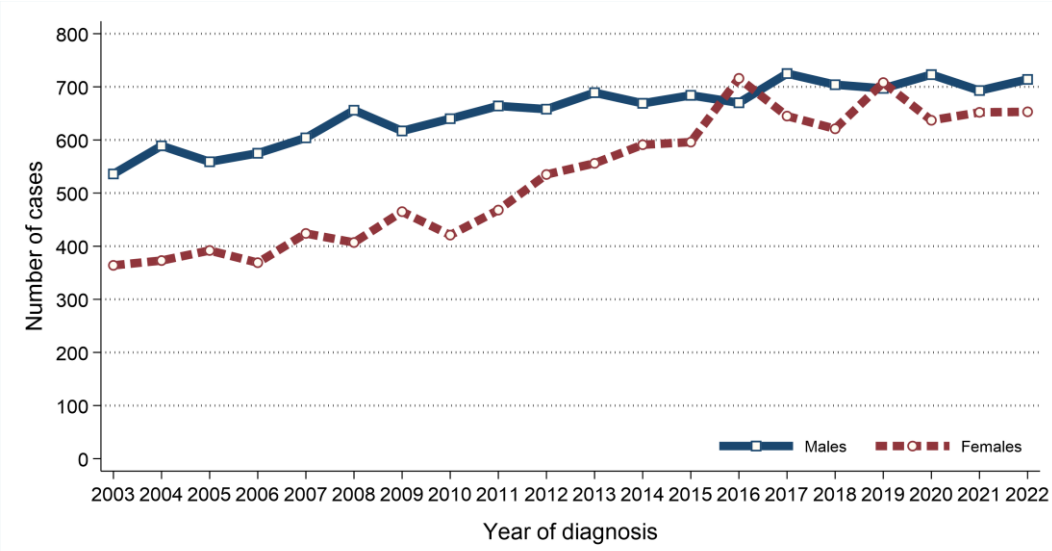
Figure 4: Age-specific incidence rates of lung cancer in 2018-2022



INCIDENCE TRENDS

- The number of cases of lung cancer among males increased between 2013-2017 and 2018-2022 by 2.7% from 3,437 cases (687 cases per year) to 3,531 cases (706 cases per year).
- The number of cases of lung cancer among females increased between 2013-2017 and 2018-2022 by 5.4% from 3,104 cases (621 cases per year) to 3,271 cases (654 cases per year).

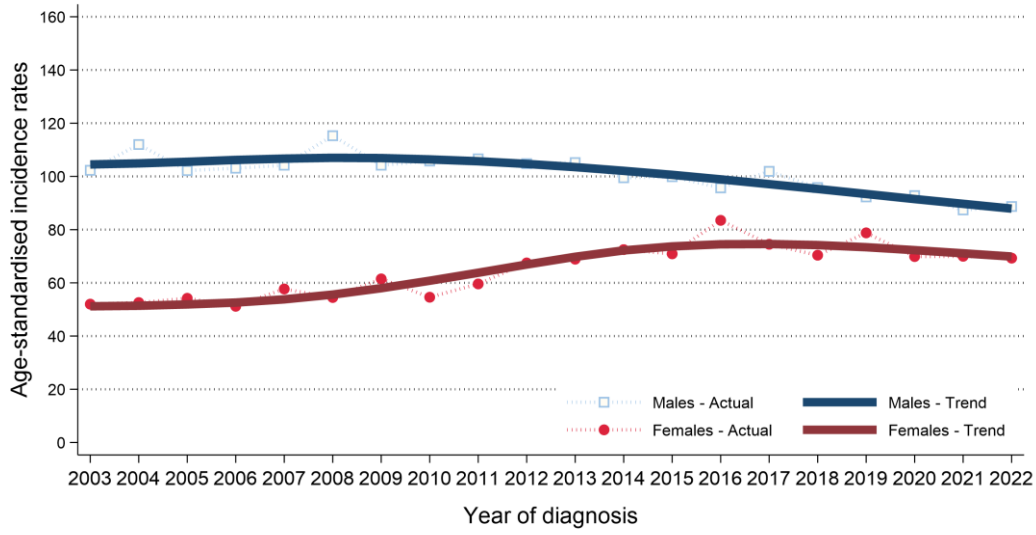
Figure 5: Trends in number of cases of lung cancer diagnosed from 2003 to 2022



Year of diagnosis	Number of cases	
	Males	Females
2013	689	556
2014	669	591
2015	684	596
2016	670	716
2017	725	645
2018	704	621
2019	697	708
2020	723	637
2021	693	652
2022	714	653

- Male age-standardised lung cancer incidence rates decreased between 2013-2017 and 2018-2022 by 9.1% from 100.4 to 91.3 cases per 100,000 males. This change was statistically significant.
- Female age-standardised lung cancer incidence rates decreased between 2013-2017 and 2018-2022 by 3.2% from 74.1 to 71.7 cases per 100,000 females. This change was not statistically significant.

Figure 6: Trends in incidence rates of lung 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 TRENDS BY AGE

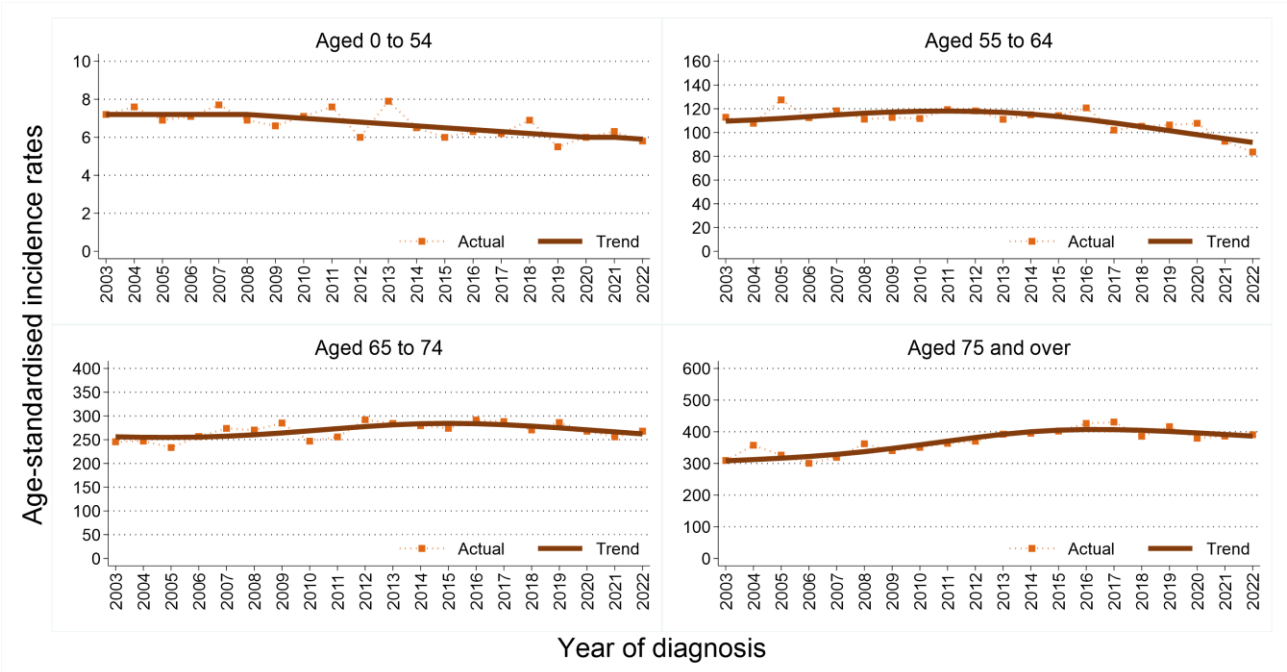
- Between 2013-2017 and 2018-2022 the number of cases of lung cancer among
  - Persons aged 0 to 54 decreased by 3.5% among males and decreased by 11.8% among females.
  - Persons aged 55 to 64 increased by 0.2% among males and decreased by 1.1% among females.
  - Persons aged 65 to 74 decreased by 1.1% among males and increased by 7.4% among females.
  - Persons aged 75 and over increased by 8.2% among males and increased by 9.4% among females.

Table 1: Average number of cases per year of lung cancer by period of diagnosis in 2013-2022

Age at diagnosis	All persons		Male		Female	
	2013-2017	2018-2022	2013-2017	2018-2022	2013-2017	2018-2022
All ages	**1,308**	**1,360**	**687**	**706**	**621**	**654**
	.	.	.	.	.	.
0 to 54	82	76	40	39	42	37
55 to 64	233	232	119	119	114	113
65 to 74	458	471	248	246	210	226
75 and over	534	581	280	302	255	279

- Between 2013-2017 and 2018-2022 age-standardised incidence rates of lung cancer among
  - Persons aged 0 to 54 did not change significantly among males or females.
  - Persons aged 55 to 64 did not change significantly among males or females.
  - Persons aged 65 to 74 did not change significantly among males or females.
  - Persons aged 75 and over did not change significantly among males or females.

Figure 7: Trends in incidence rates of lung cancer from 2003 to 2022 by age group



INCIDENCE BY HISTOLOGICAL TYPE

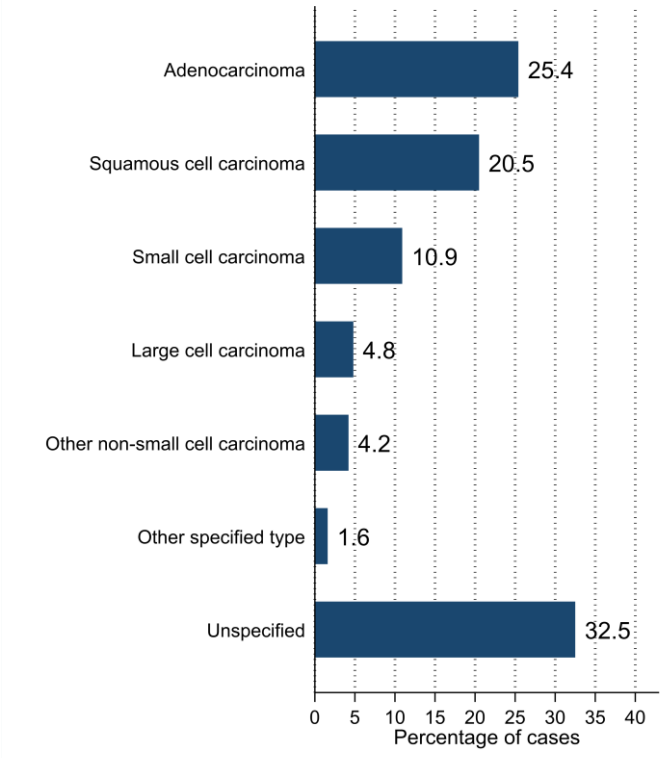
- During 2018-2022 66.2% of lung cancer cases had a histological type specified.
- Of the 2,298 cases with an unspecified type 96.9% were not microscopically verified.
- The most common lung cancer types among males were adenocarcinoma (25.4%) and squamous cell carcinoma (20.5%). Among females they were adenocarcinoma (28.8%) and squamous cell carcinoma (12.1%).

Table 2: Number of cases of lung cancer diagnosed in 2018-2022 by histological type

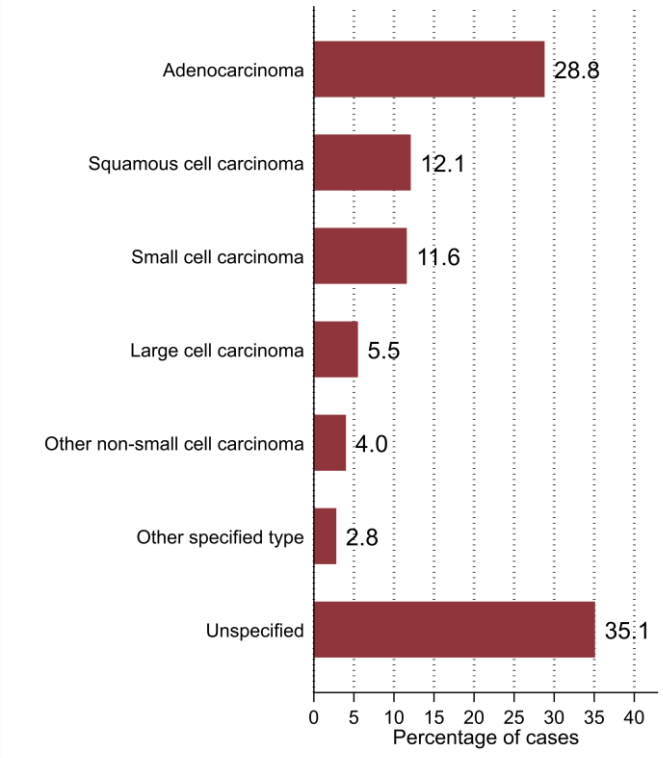
Histological type	All persons		Male		Female	
	Total cases in period	Average cases per year	Total cases in period	Average cases per year	Total cases in period	Average cases per year
All types	**6,802**	**1,360**	**3,531**	**706**	**3,271**	**654**
	.	.	.	.	.	.
Adenocarcinoma	1,838	368	897	179	941	188
Large cell carcinoma	351	70	170	34	181	36
Small cell carcinoma	766	153	386	77	380	76
Squamous cell carcinoma	1,120	224	723	145	397	79
Other non-small cell carcinoma	279	56	148	30	131	26
Other specified type	150	30	58	12	92	18
Unspecified	2,298	460	1,149	230	1,149	230

Figure 8: Proportion of cases of lung cancer in 2018-2022 by histological type

MALE



FEMALE



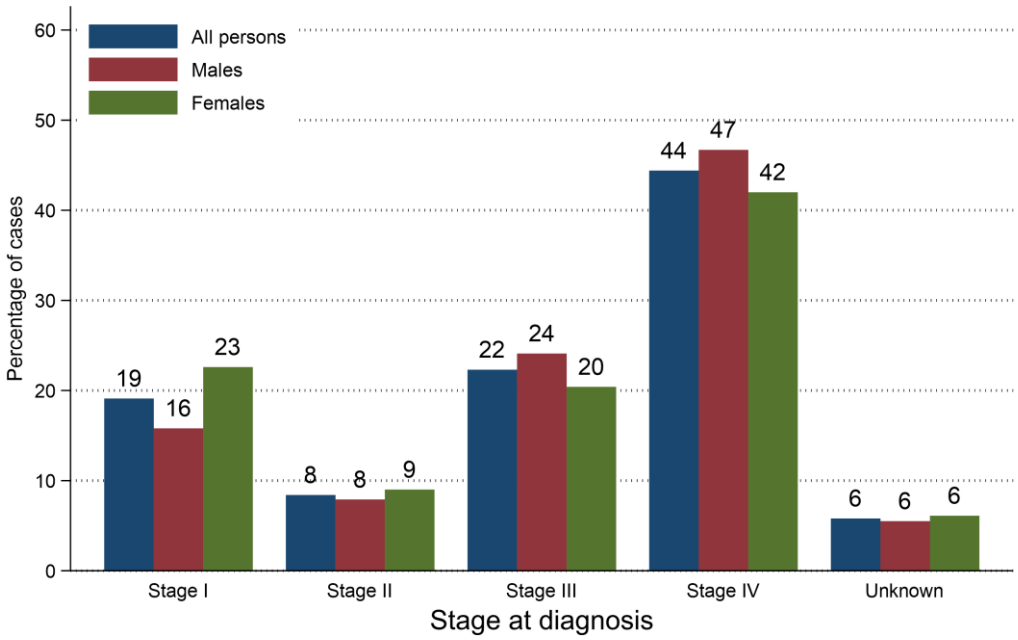
INCIDENCE BY STAGE AT DIAGNOSIS

- During 2018-2022 94.2% of lung cancer cases had a stage assigned.
- 19.1% of lung cancer cases were diagnosed at Stage I. (20.2% of staged cases)
- 44.4% of lung cancer cases were diagnosed at Stage IV. (47.2% of staged cases)

Table 3: Number of cases of lung cancer diagnosed in 2018-2022 by stage at diagnosis

Stage at diagnosis	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
All stages	**6,802**	**1,360**	**3,531**	**706**	**3,271**	**654**
	.	.	.	.	.	.
Stage I	1,296	259	557	111	739	148
Stage II	573	115	280	56	293	59
Stage III	1,517	303	851	170	666	133
Stage IV	3,023	605	1,649	330	1,374	275
Unknown	393	79	194	39	199	40

Figure 9: Proportion of cases of lung 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).

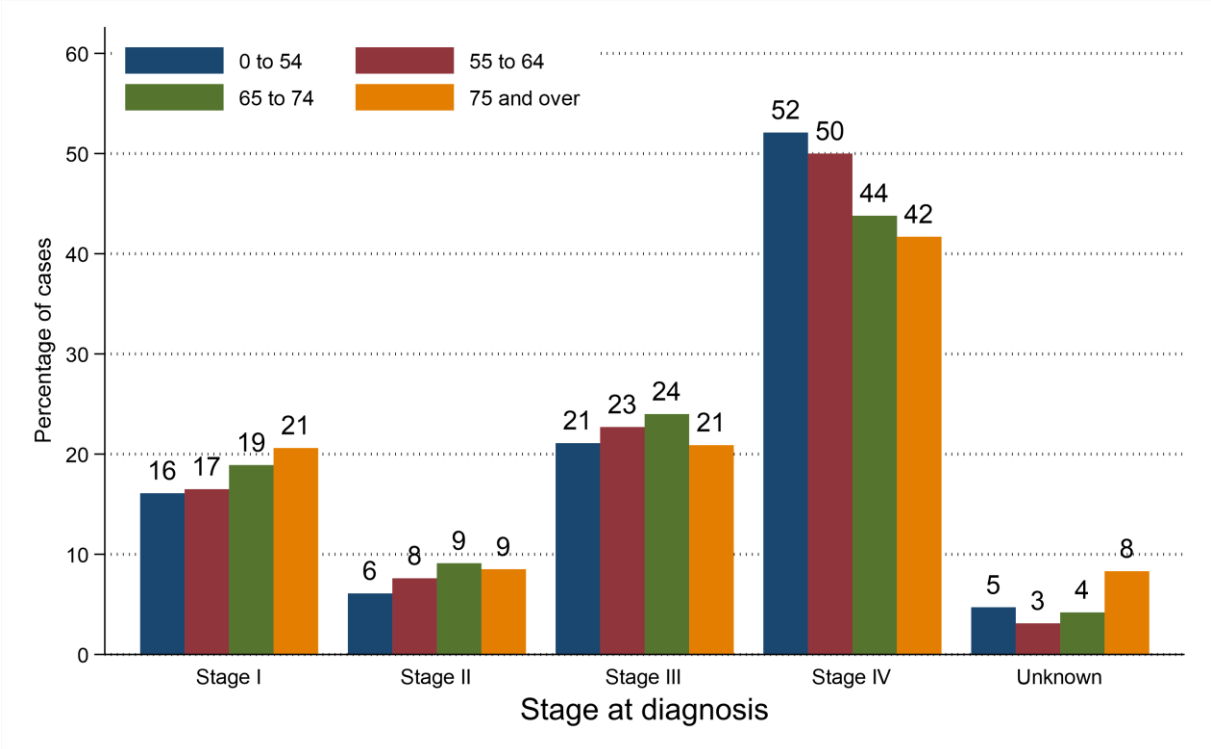
INCIDENCE BY STAGE AND AGE AT DIAGNOSIS

- During 2018-2022 91.7% of lung cancer cases among those aged 75 and over had a stage assigned compared to 95.3% of those aged 0 to 54.
- 20.6% of lung cancer cases among those aged 75 and over were diagnosed at Stage I (22.4% of staged cases) compared to 16.1% of those aged 0 to 54 (16.9% of staged cases).
- 41.7% of lung cancer cases among those aged 75 and over were diagnosed at Stage IV (45.5% of staged cases) compared to 52.1% of those aged 0 to 54 (54.7% of staged cases).

Table 4: Average number of cases of lung cancer diagnosed per year in 2018-2022 by stage and age at diagnosis

Stage at diagnosis	Age at diagnosis				
	All ages	0 to 54	55 to 64	65 to 74	75 and over
All stages	**1,360**	**76**	**232**	**471**	**581**
	.	.	.	.	.
Stage I	259	12	38	89	119
Stage II	115	5	18	43	50
Stage III	303	16	53	113	122
Stage IV	605	40	116	206	242
Unknown	79	4	7	20	48

Figure 10: Proportion of cases of lung cancer diagnosed in 2018-2022 by stage and age at diagnosis



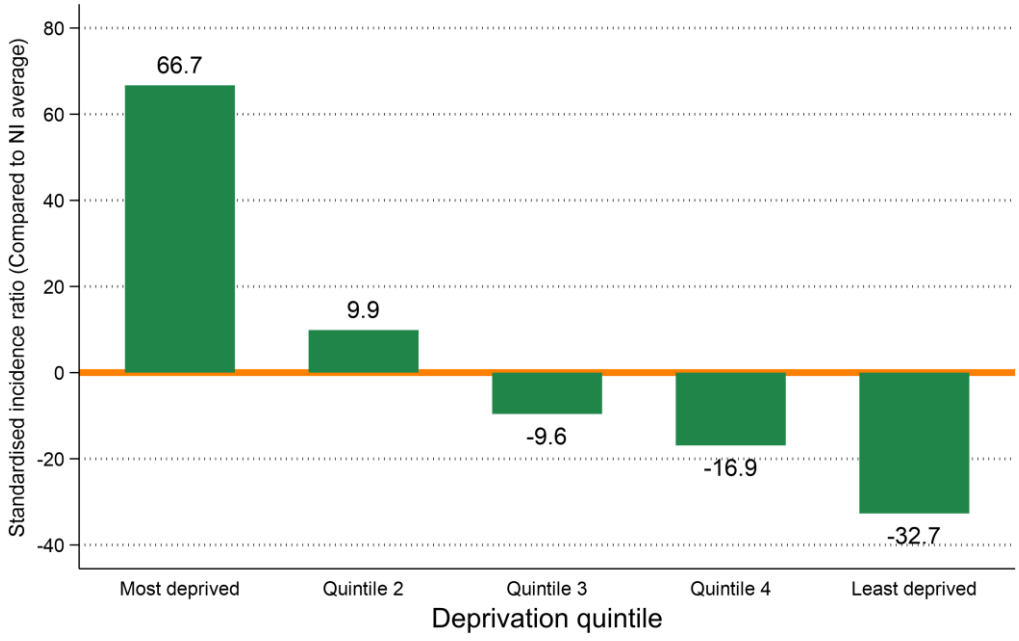
INCIDENCE BY DEPRIVATION

- The number of cases of lung 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 were 66.7% higher than the NI average.
  - in the least socio-economically deprived areas were 32.7% lower than the NI average.

Table 5: Number of cases of lung 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	**6,802**	**1,360**	**3,531**	**706**	**3,271**	**654**
	.	.	.	.	.	.
Most deprived	1,819	364	914	183	905	181
Quintile 2	1,489	298	780	156	709	142
Quintile 3	1,299	260	703	141	596	119
Quintile 4	1,205	241	641	128	564	113
Least deprived	989	198	492	98	497	99
Unknown	1	0	1	0	0	0

Figure 11: Standardised incidence ratio comparing deprivation quintile to Northern Ireland for lung 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.

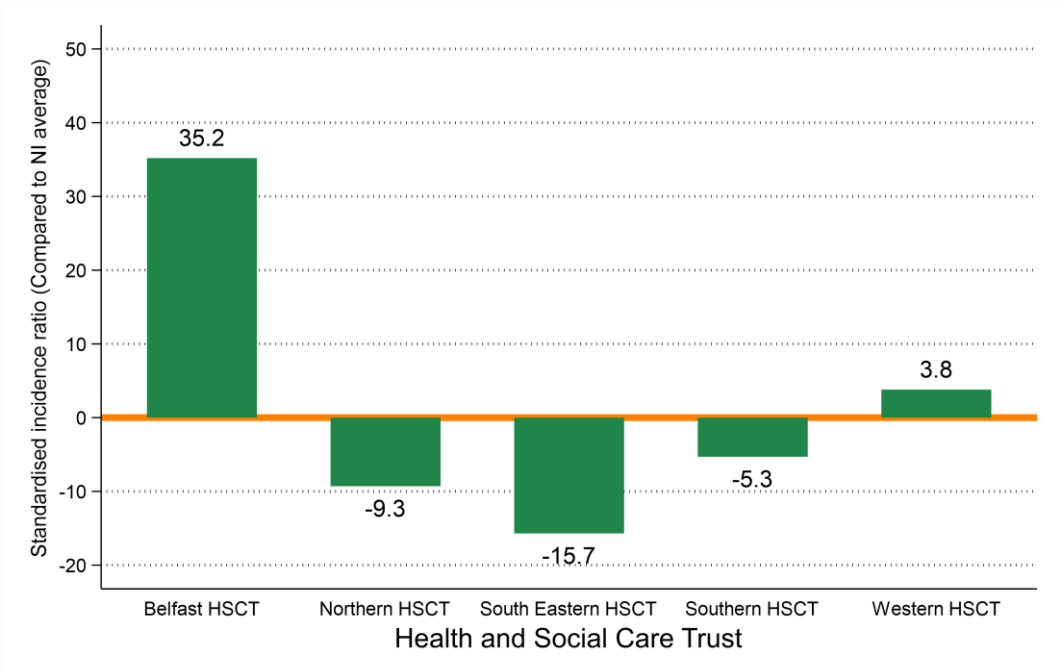
INCIDENCE BY HEALTH AND SOCIAL CARE TRUST

- The number of cases of lung 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 were 35.2% higher than the NI average.
  - in Northern HSCT were 9.3% lower than the NI average.
  - in South Eastern HSCT were 15.7% 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.

Table 6: Number of cases of lung 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	**6,802**	**1,360**	**3,531**	**706**	**3,271**	**654**
	.	.	.	.	.	.
Belfast HSCT	1,622	324	811	162	811	162
Northern HSCT	1,648	330	839	168	809	162
South Eastern HSCT	1,229	246	634	127	595	119
Southern HSCT	1,203	241	660	132	543	109
Western HSCT	1,099	220	586	117	513	103
Unknown	1	0	1	0	0	0

Figure 12: Standardised incidence ratio comparing Health and Social Care Trust to Northern Ireland for lung cancer diagnosed in 2018-2022



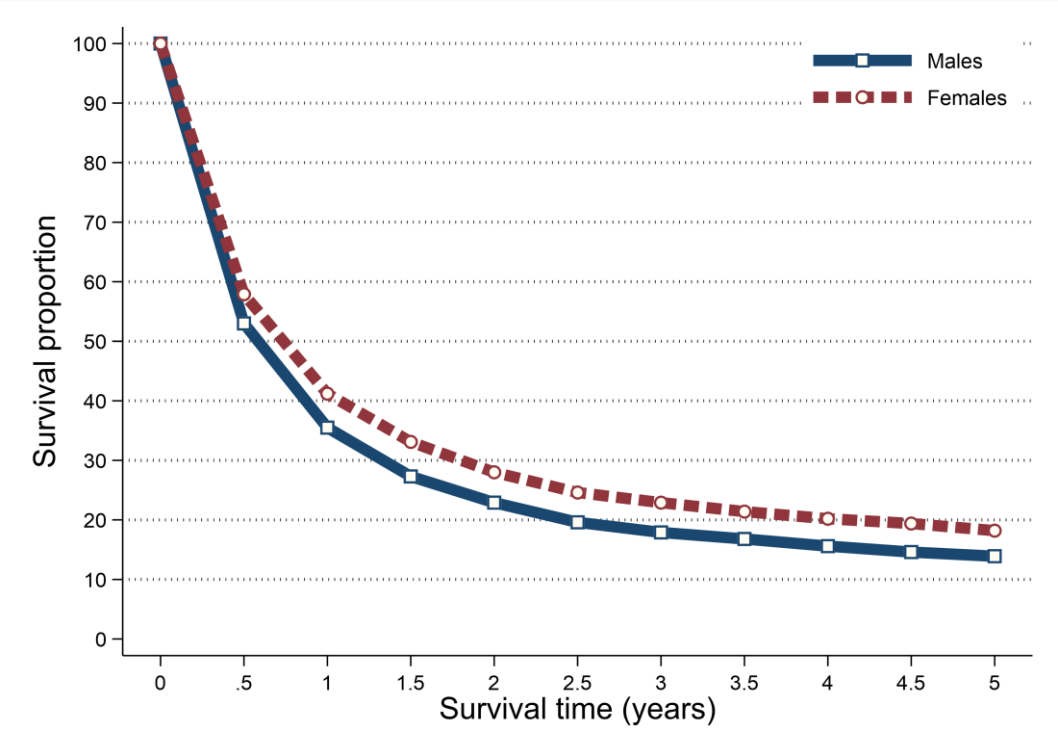
SURVIVAL

- 35.3% of patients were alive one year and 12.2% were alive five years from a lung cancer diagnosis in 2013-2017. (observed survival)
- Age-standardised net survival (ASNS), which removes the effect of deaths from causes unrelated to cancer, was 38.2% one year and 15.9% five years from a lung cancer diagnosis in 2013-2017.
- Five-year survival (ASNS) for lung cancer patients diagnosed in 2013-2017 was 13.9% among men and 18.2% among women.

Table 7: Survival from lung 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	52.0%	55.4%	49.8%	53.0%	54.4%	57.9%
One year	35.3%	38.2%	32.8%	35.5%	38.2%	41.2%
Two years	22.4%	25.3%	19.8%	22.9%	25.2%	28.0%
Five years	12.2%	15.9%	10.2%	13.9%	14.5%	18.2%

Figure 13: Age-standardised net survival from lung 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.

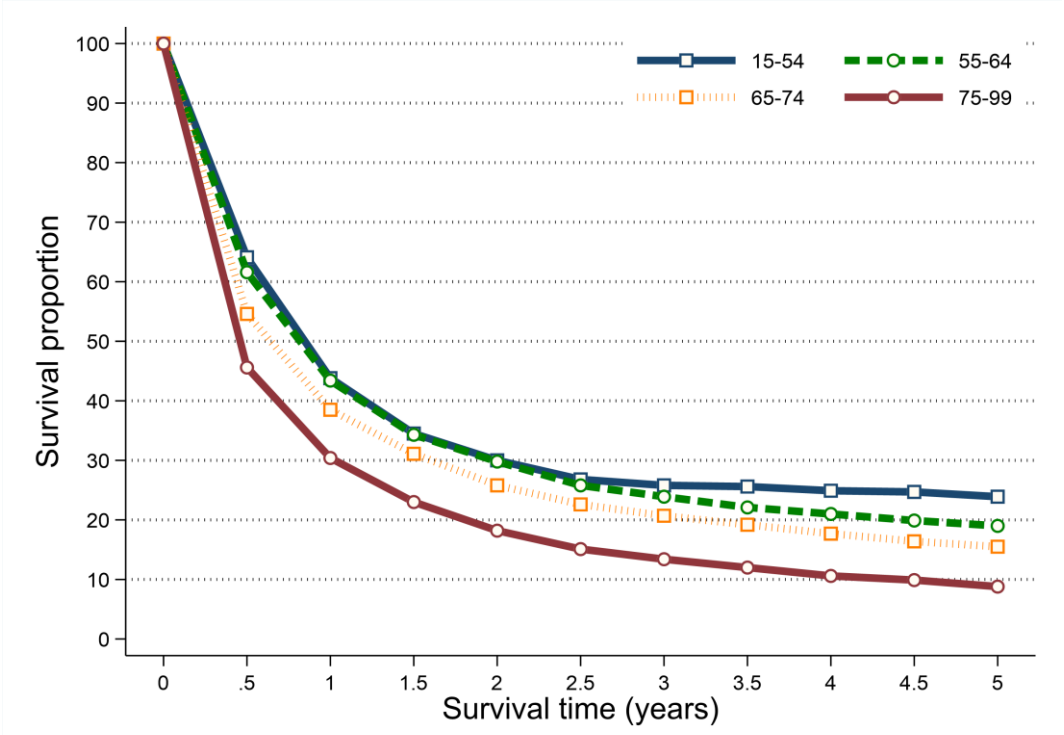
SURVIVAL BY AGE

- Survival from lung 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 23.9% among patients aged 15 to 54 at diagnosis to 8.8% among those aged 75 to 99.
- Five-year net survival for lung cancer patients aged 75 to 99 at diagnosis in 2013-2017 was 6.2% among men compared to 11.5% among women.

Table 8: Net survival from lung cancer for patients diagnosed in 2013-2017 by age at diagnosis

Age group	All persons		Male		Female	
	One-year	Five-years	One-year	Five-years	One-year	Five-years
15 to 54	43.8%	23.9%	39.6%	23.4%	47.9%	24.5%
55 to 64	43.4%	19.0%	40.9%	15.8%	45.9%	22.4%
65 to 74	38.5%	15.5%	36.6%	13.9%	40.7%	17.4%
75 to 99	30.4%	8.8%	27.6%	6.2%	33.5%	11.5%

Figure 14: Net survival from lung cancer for patients diagnosed in 2013-2017 by age at diagnosis

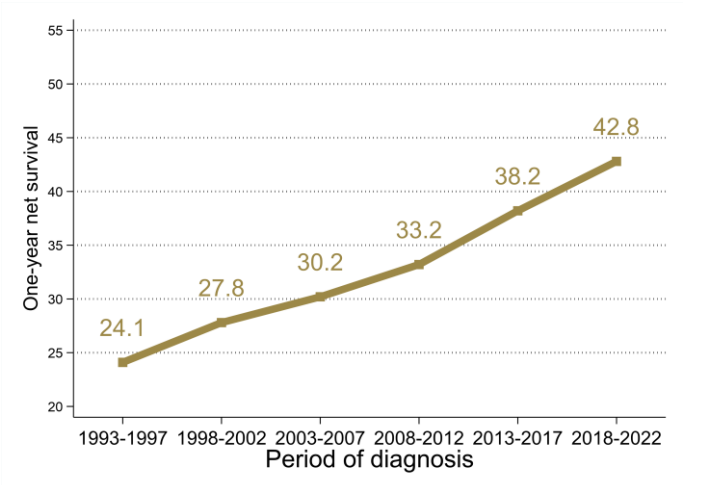


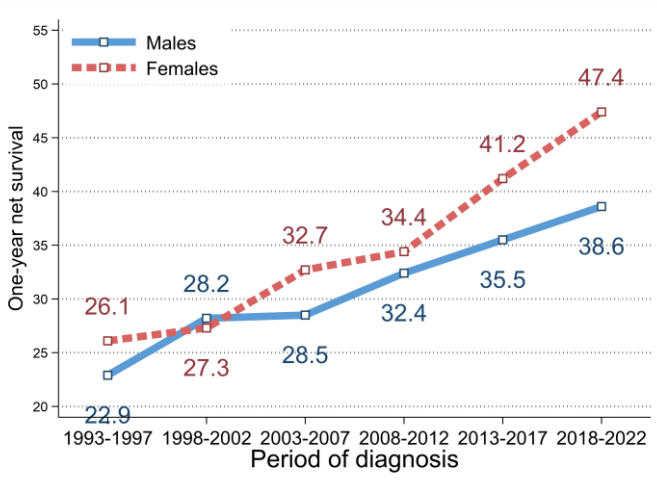
SURVIVAL TRENDS

ONE-YEAR NET SURVIVAL

- Between 2013-2017 and 2018-2022 there was a significant increase from 38.2% to 42.8% in one-year survival (ASNS) from lung cancer. This increase was significant for females (41.2% to 47.4%) but not males.
- Compared to 1993-1997 one-year survival (ASNS) from lung cancer in 2018-2022 increased significantly from 24.1% to 42.8%. This increase was significant for males (22.9% to 38.6%) and females (26.1% to 47.4%).

Figure 15: Trends in one-year age-standardised net survival from lung cancer in 1993-2022

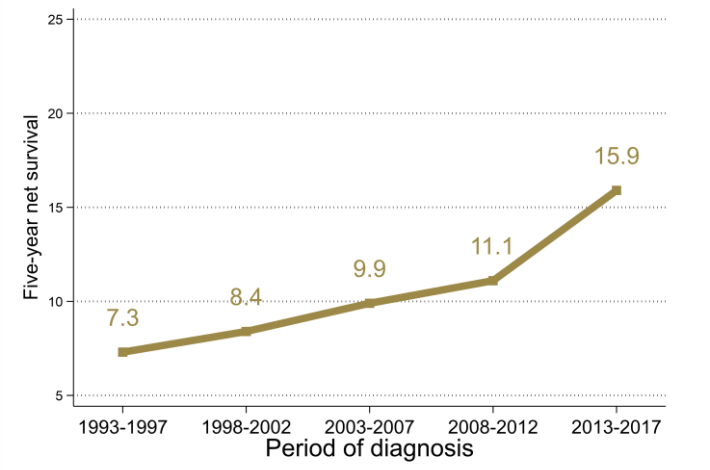


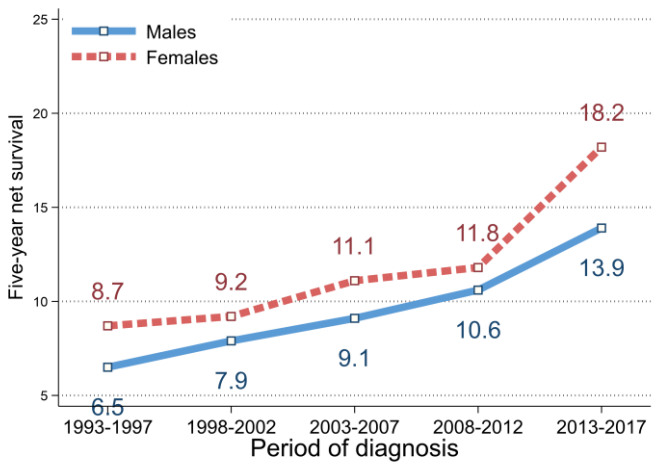


FIVE-YEAR NET SURVIVAL

- Between 2008-2012 and 2013-2017 there was a significant increase from 11.1% to 15.9% in five-year survival (ASNS) from lung cancer. This increase was significant for males (10.6% to 13.9%) and females (11.8% to 18.2%).
- Compared to 1993-1997 five-year survival (ASNS) from lung cancer in 2013-2017 increased significantly from 7.3% to 15.9%. This increase was significant for males (6.5% to 13.9%) and females (8.7% to 18.2%).

Figure 16: Trends in five-year age-standardised net survival from lung cancer in 1993-2017





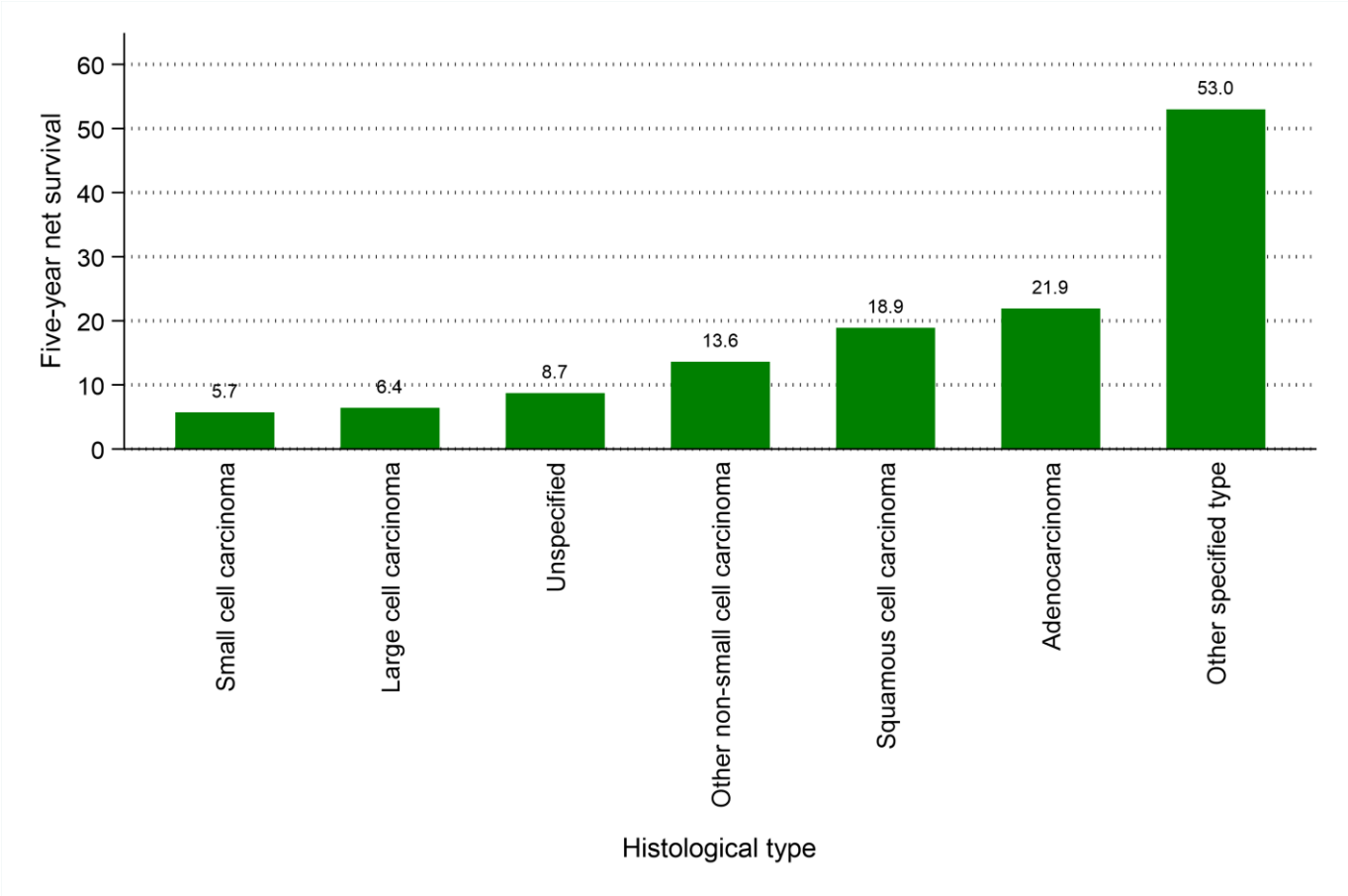
SURVIVAL BY HISTOLOGICAL TYPE

- Five-year survival (ASNS) for patients diagnosed in 2013-2017 ranged from 53.0% for those with another specified type to 5.7% for small cell carcinoma.

Table 9: Age-standardised net survival from lung cancer for patients diagnosed in 2013-2017 by histological type

Histological type	All persons		Male		Female	
	One-year	Five-years	One-year	Five-years	One-year	Five-years
Adenocarcinoma	45.2%	21.9%	41.8%	18.3%	48.3%	25.2%
Large cell carcinoma	20.3%	6.4%	18.8%	6.4%	22.0%	6.5%
Small cell carcinoma	24.6%	5.7%	21.9%	4.1%	27.3%	7.2%
Squamous cell carcinoma	46.9%	18.9%	45.4%	16.6%	49.6%	23.2%
Other non-small cell carcinoma	35.4%	13.6%	33.6%	12.0%	37.8%	15.6%
Other specified type	68.6%	53.0%	59.4%	43.0%	75.8%	61.0%
Unspecified	27.1%	8.7%	27.3%	11.0%	26.9%	6.5%

Figure 17: Five-year age-standardised net survival from lung cancer for patients diagnosed in 2013-2017 by histological type



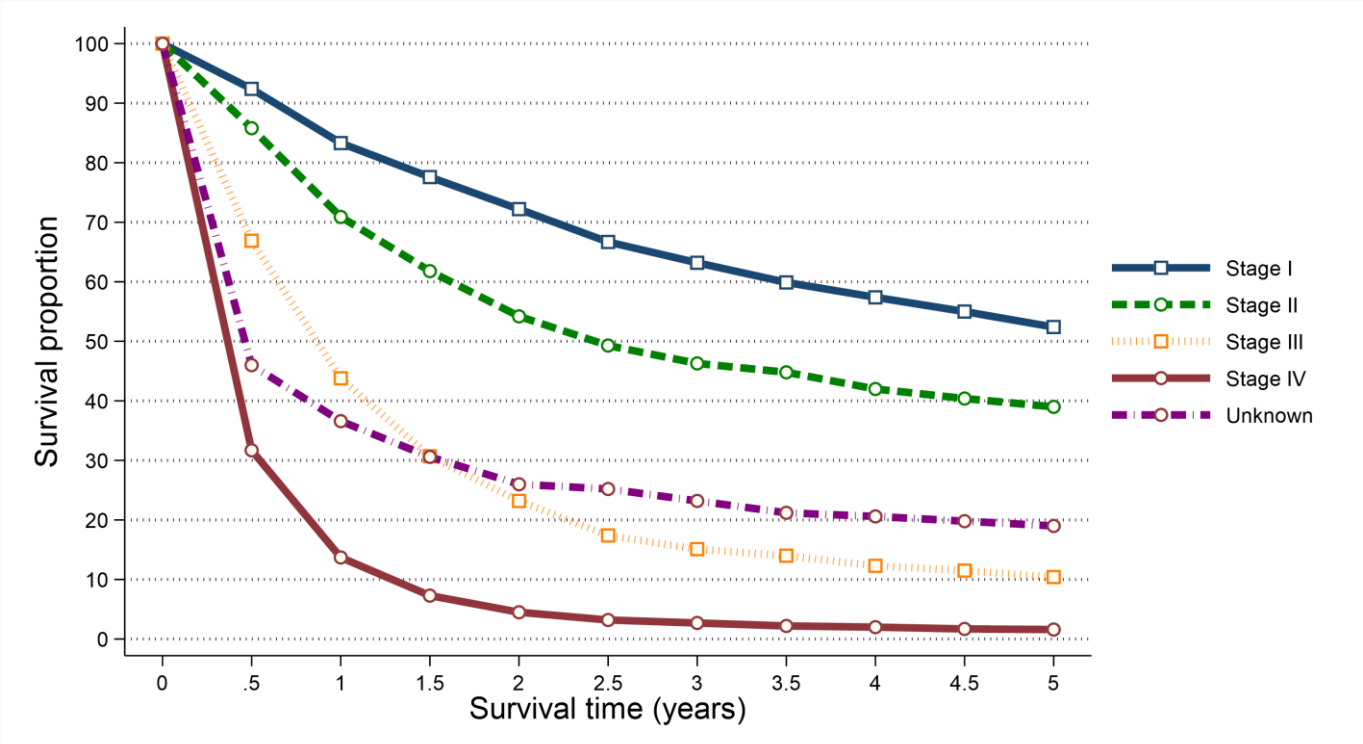
SURVIVAL BY STAGE

- Survival from lung 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 52.4% among patients diagnosed at Stage I to 1.6% among those diagnosed at Stage IV.
- Five-year survival (ASNS) for lung cancer patients diagnosed at Stage IV in 2013-2017 was 1.4% among men compared to 1.9% among women.

Table 10: Age-standardised net survival from lung cancer for patients diagnosed in 2013-2017 by stage at diagnosis

Stage at diagnosis	All persons		Male		Female	
	One-year	Five-years	One-year	Five-years	One-year	Five-years
Stage I	83.3%	52.4%	79.8%	47.3%	86.5%	57.2%
Stage II	70.9%	39.0%	68.8%	37.1%	73.0%	40.9%
Stage III	43.8%	10.4%	42.0%	7.5%	45.9%	13.7%
Stage IV	13.7%	1.6%	11.9%	1.4%	15.8%	1.9%
Unknown	36.6%	19.0%	34.9%	18.3%	38.4%	19.6%

Figure 18: Age-standardised net survival from lung cancer for patients diagnosed in 2013-2017 by stage at diagnosis



PREVALENCE

- At the end of 2022, there were 2,855 people (Males: 1,318; Females: 1,537) living with lung cancer who had been diagnosed with the disease during 1998-2022.
- Of these 27.7% had been diagnosed in the previous year (one-year prevalence) and 88.3% in the previous 10 years (ten-year prevalence).
- 42.3% of lung cancer survivors were aged 75 and over at the end of 2022.

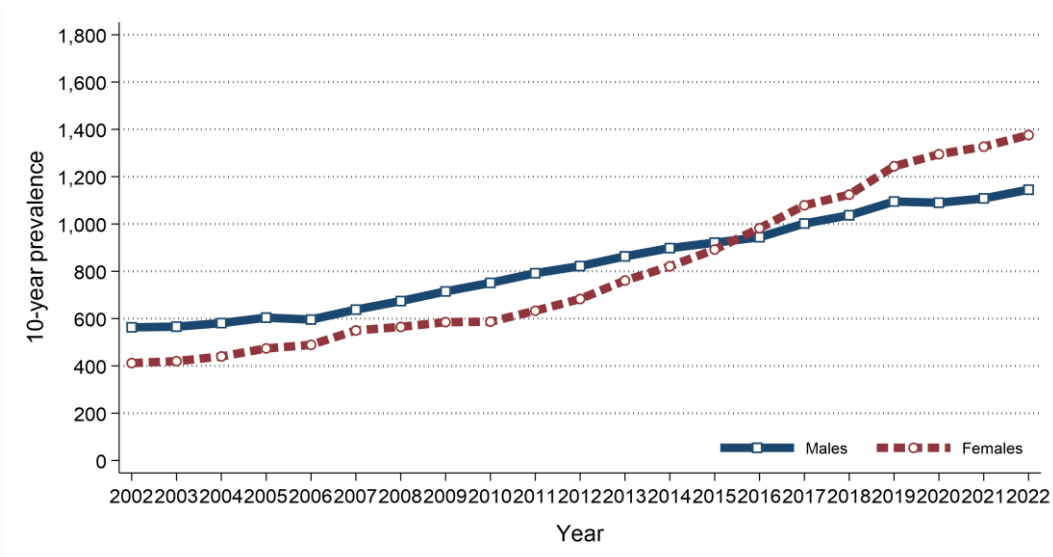
Table 11: 25-year prevalence of lung cancer by age at end of 2022

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	2,855	790	1,139	592	334
	0 to 74	1,646	486	660	331	169
	75 and over	1,209	304	479	261	165
Male	All ages	1,318	387	504	254	173
	0 to 74	760	238	290	146	86
	75 and over	558	149	214	108	87
Female	All ages	1,537	403	635	338	161
	0 to 74	886	248	370	185	83
	75 and over	651	155	265	153	78

PREVALENCE TRENDS

- 10-year prevalence of lung cancer among males increased between 2017 and 2022 by 14.3% from 1,002 survivors to 1,145 survivors.
- 10-year prevalence of lung cancer among females increased between 2017 and 2022 by 27.5% from 1,079 survivors to 1,376 survivors.

Figure 19: Trends in 10-year prevalence of lung cancer in 2002-2022



Year	10-year prevalence	
	Males	Females
2013	863	761
2014	898	821
2015	921	892
2016	944	982
2017	1,002	1,079
2018	1,037	1,124
2019	1,095	1,244
2020	1,090	1,295
2021	1,108	1,327
2022	1,145	1,376

MORTALITY

- There were 5,158 deaths from lung cancer (including trachea) during 2018-2022 in Northern Ireland. On average this was 1,032 deaths per year.
- During this period 46.9% of lung cancer deaths were among women (Male deaths: 2,738, Female deaths: 2,420). On average there were 548 male and 484 female deaths from lung cancer per year.
- Lung cancer deaths made up 22.9% of all male cancer deaths and 22.3% of all female cancer deaths.
- The median age of patients who died from lung cancer during 2018-2022 was 74 years (Males: 74, Females: 74).
- The risk of dying from lung cancer varied by age, with 47.6% of men and 48.0% of women who died from lung cancer aged 75 and over at death.
- In contrast, 4.7% of patients who died from lung cancer were aged 0 to 54 at death.

Figure 20: Average number of deaths from lung cancer per year in 2018-2022 by age at death

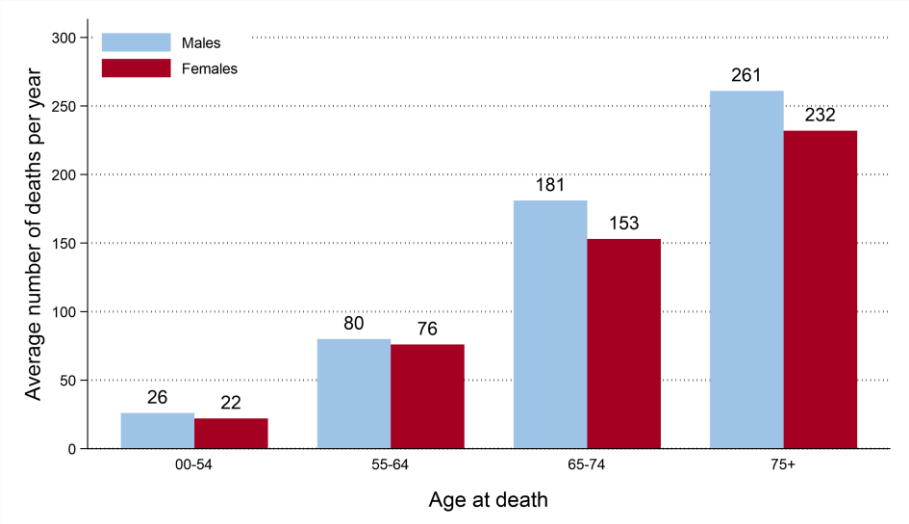
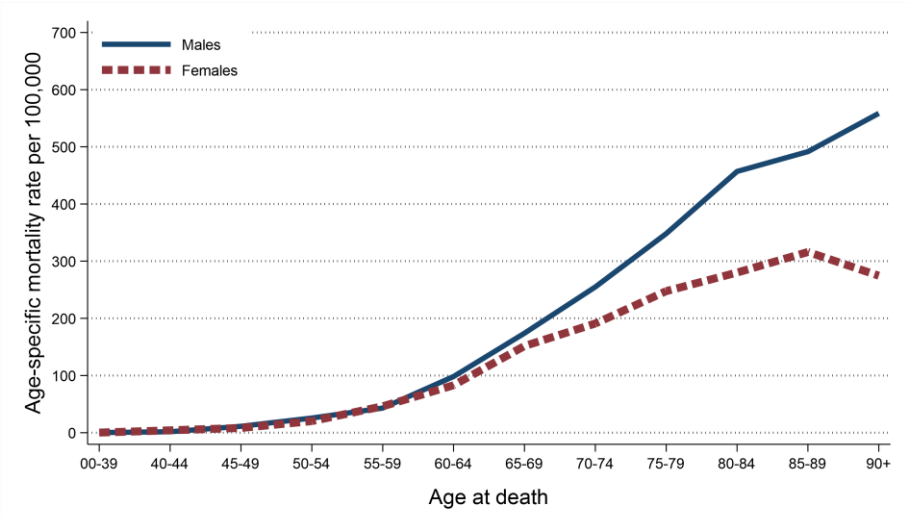


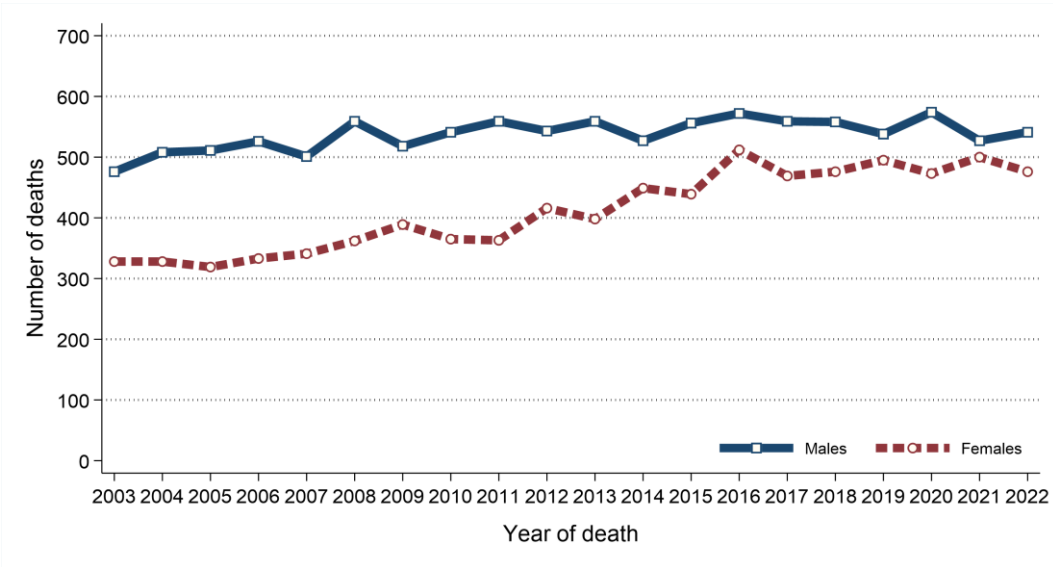
Figure 21: Age-specific mortality rates of lung cancer in 2018-2022



MORTALITY TRENDS

- The number of deaths from lung cancer among males decreased between 2013-2017 and 2018-2022 by 1.3% from 2,773 deaths (555 deaths per year) to 2,738 deaths (548 deaths per year).
- The number of deaths from lung cancer among females increased between 2013-2017 and 2018-2022 by 6.7% from 2,267 deaths (453 deaths per year) to 2,420 deaths (484 deaths per year).

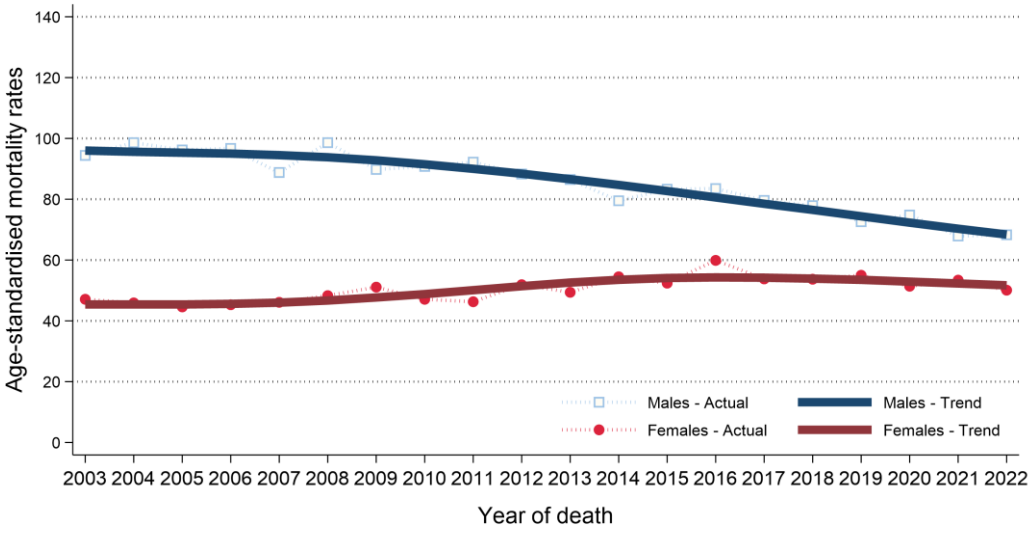
Figure 22: Trends in the number of deaths from lung cancer from 2003 to 2022



Year of death	Number of deaths	
	Males	Females
2013	559	398
2014	527	449
2015	556	439
2016	572	512
2017	559	469
2018	558	476
2019	538	495
2020	574	473
2021	527	500
2022	541	476

- Male age-standardised lung cancer mortality rates decreased between 2013-2017 and 2018-2022 by 12.4% from 82.4 to 72.2 deaths per 100,000 males. This change was statistically significant.
- Female age-standardised lung cancer mortality rates decreased between 2013-2017 and 2018-2022 by 2.6% from 54.1 to 52.7 deaths per 100,000 females. This change was not statistically significant.

Figure 23: Trends in mortality rates of lung 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. lung 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. lung 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.