
Liver cancer

1993-2021

(ICD10 codes: C22)



Northern Ireland Cancer Registry, 2024

An official statistics publication

ABOUT THIS REPORT

Contents

This report includes information on incidence of liver cancer as recorded by the Northern Ireland Cancer Registry (NICR). Incidence data is available annually from 1993 to 2021, 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. Liver cancer: 1993-2021. 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.

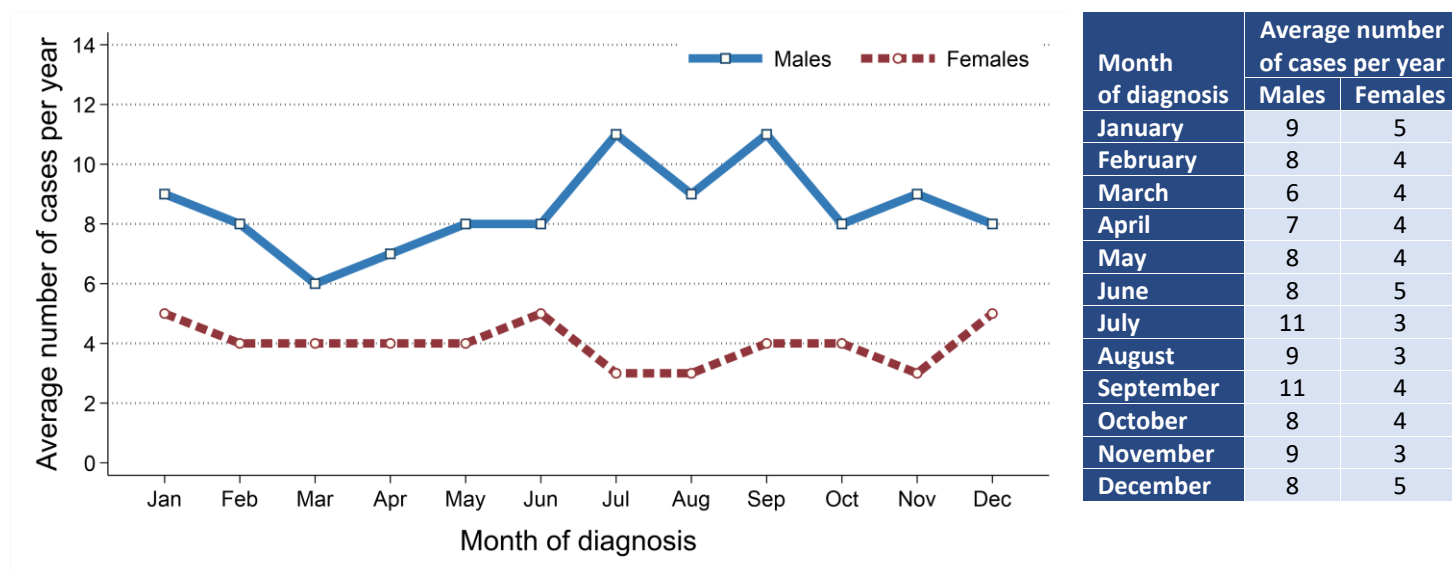
NICR is funded by the Public Health Agency and is based in Queen's University, Belfast.



INCIDENCE

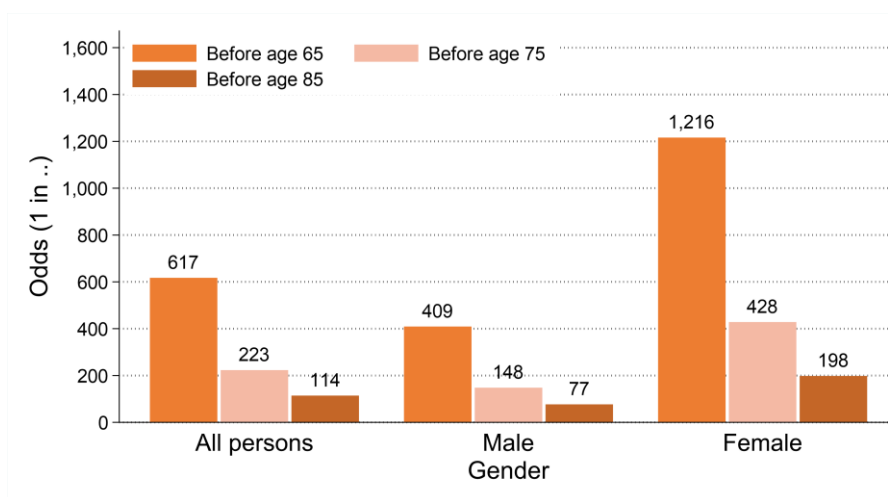
- There were 755 cases of liver cancer diagnosed during 2017-2021 in Northern Ireland. On average this was 151 cases per year.
- During this period 31.7% of liver cancer cases were among women (Male cases: 516, Female cases: 239). On average there were 103 male and 48 female cases of liver cancer per year.
- The most common diagnosis month during 2017-2021 was September and July among males with 11 cases per year and January, June and December among females with 5 cases per year.

Figure 1: Average number of cases of liver cancer per year in 2017-2021 by month of diagnosis



- Liver cancer made up 2.0% of all male and 1.0% of all female cancer cases (excluding non-melanoma skin cancer).
- The liver cancer incidence rates for each gender were 11.1 cases per 100,000 males and 5.0 cases per 100,000 females.
- The odds of developing liver cancer before age 85 was 1 in 77 for men and 1 in 198 for women.

Figure 2: Odds of developing liver cancer in 2017-2021



INCIDENCE BY AGE

- The median age of patients diagnosed with liver cancer during 2017-2021 was 73 years (Males: 72, Females: 75).
- The risk of developing liver cancer varied by age, with 38.4% of men and 51.5% of women diagnosed with liver cancer aged 75 and over at diagnosis.
- In contrast, 8.1% of patients diagnosed with liver cancer were aged 0 to 54 at diagnosis.

Figure 3: Average number of cases of liver cancer diagnosed per year in 2017-2021 by age at diagnosis

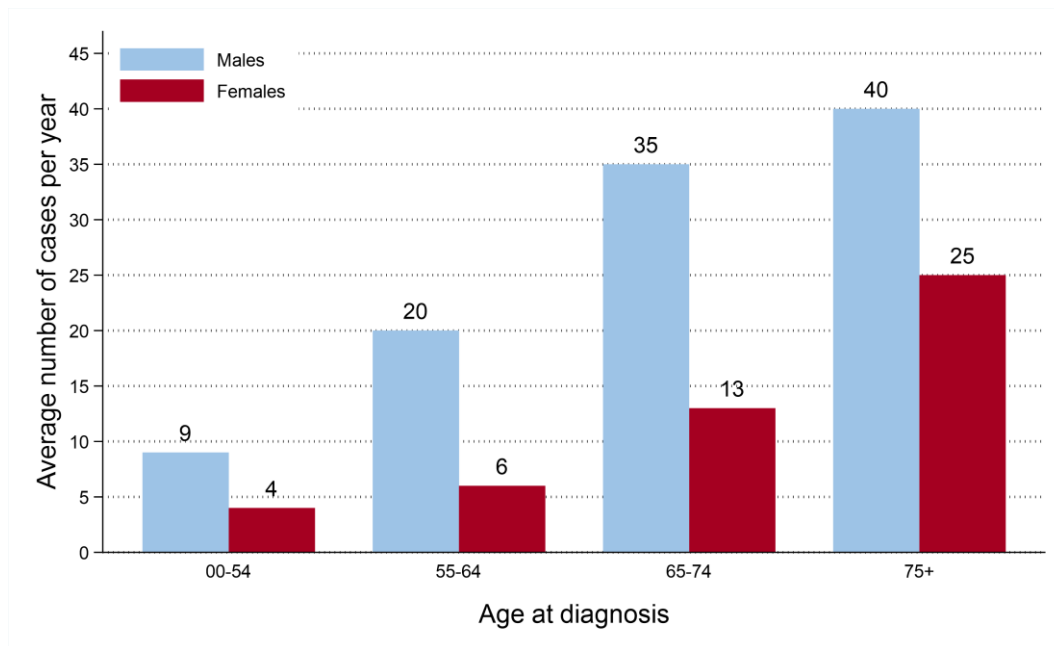
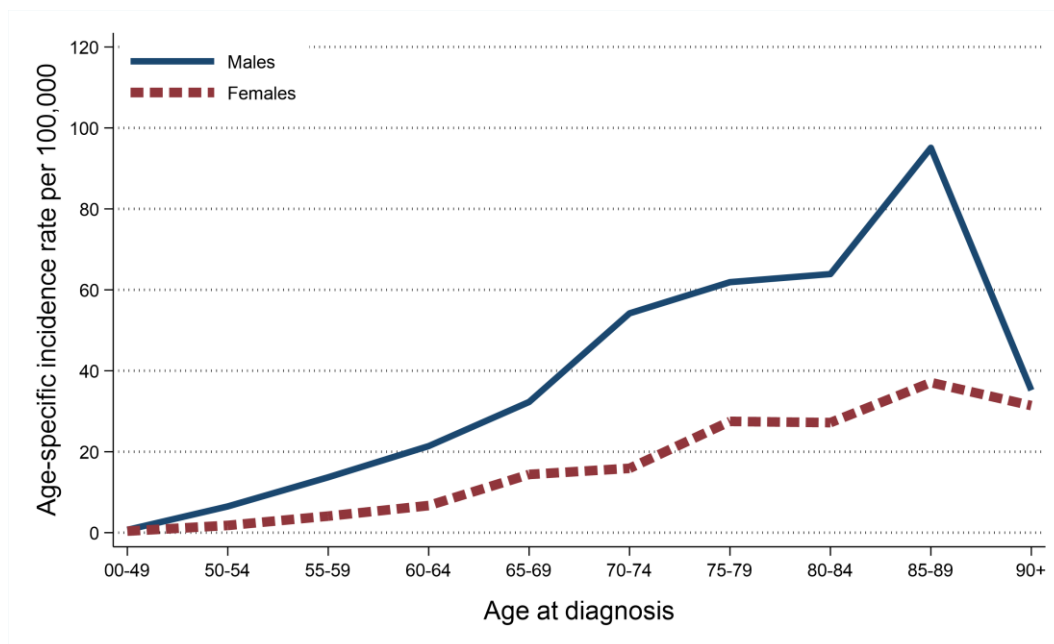


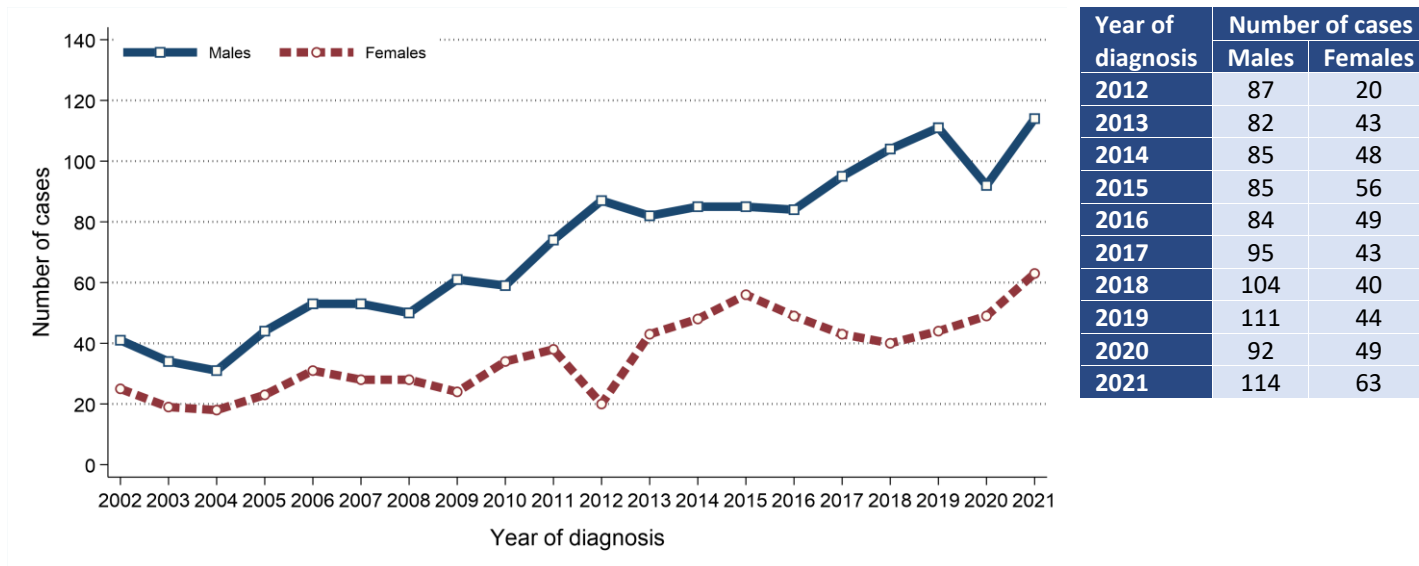
Figure 4: Age-specific incidence rates of liver cancer in 2017-2021



INCIDENCE TRENDS

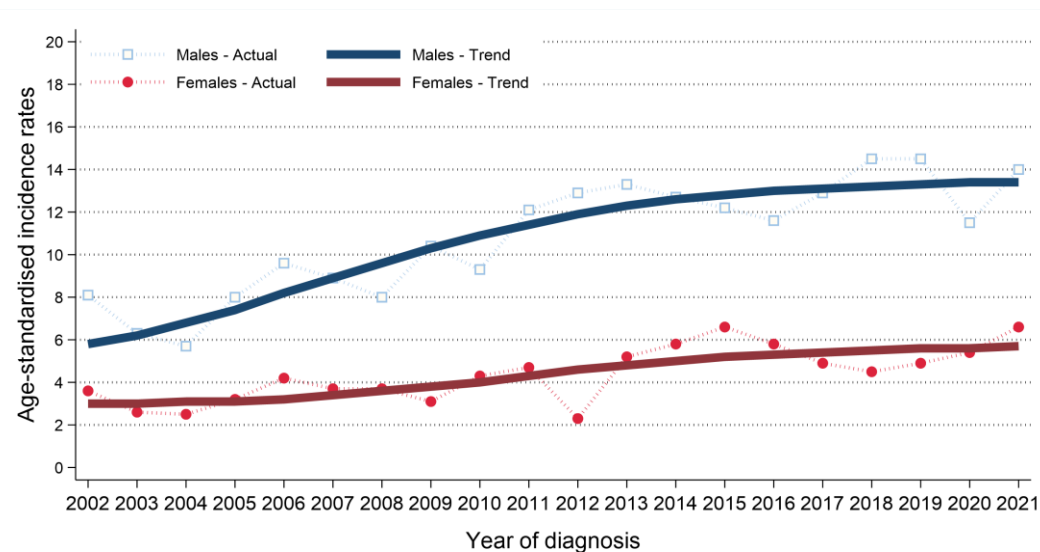
- The number of cases of liver cancer among males increased between 2012-2016 and 2017-2021 by 22.0% from 423 cases (85 cases per year) to 516 cases (103 cases per year).
- The number of cases of liver cancer among females increased between 2012-2016 and 2017-2021 by 10.6% from 216 cases (43 cases per year) to 239 cases (48 cases per year).

Figure 5: Trends in number of cases of liver cancer diagnosed from 2002 to 2021



- Male age-standardised liver cancer incidence rates increased between 2012-2016 and 2017-2021 by 8.0% from 12.5 to 13.5 cases per 100,000 males. This change was not statistically significant.
- Female age-standardised liver cancer incidence rates increased between 2012-2016 and 2017-2021 by 1.9% from 5.2 to 5.3 cases per 100,000 females. This change was not statistically significant.

Figure 6: Trends in incidence rates of liver cancer from 2002 to 2021



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).

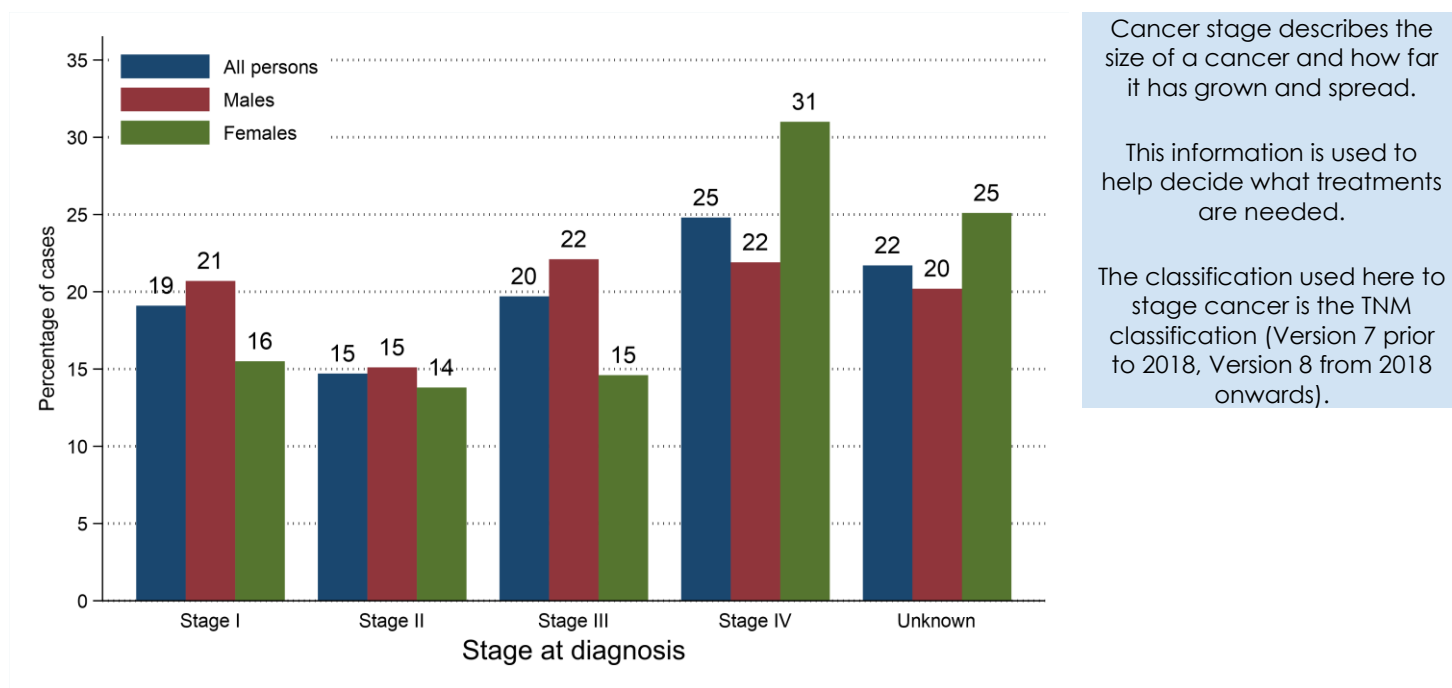
INCIDENCE BY STAGE AT DIAGNOSIS

- During 2017-2021 78.3% of liver cancer cases had a stage assigned.
- 19.1% of liver cancer cases were diagnosed at Stage I. (24.4% of staged cases)
- 24.8% of liver cancer cases were diagnosed at Stage IV. (31.6% of staged cases)

Table 1: Number of cases of liver cancer diagnosed in 2017-2021 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	755	151	516	103	239	48
Stage I	144	29	107	21	37	7
Stage II	111	22	78	16	33	7
Stage III	149	30	114	23	35	7
Stage IV	187	37	113	23	74	15
Unknown	164	33	104	21	60	12

Figure 7: Proportion of cases of liver cancer diagnosed in 2017-2021 by stage at diagnosis



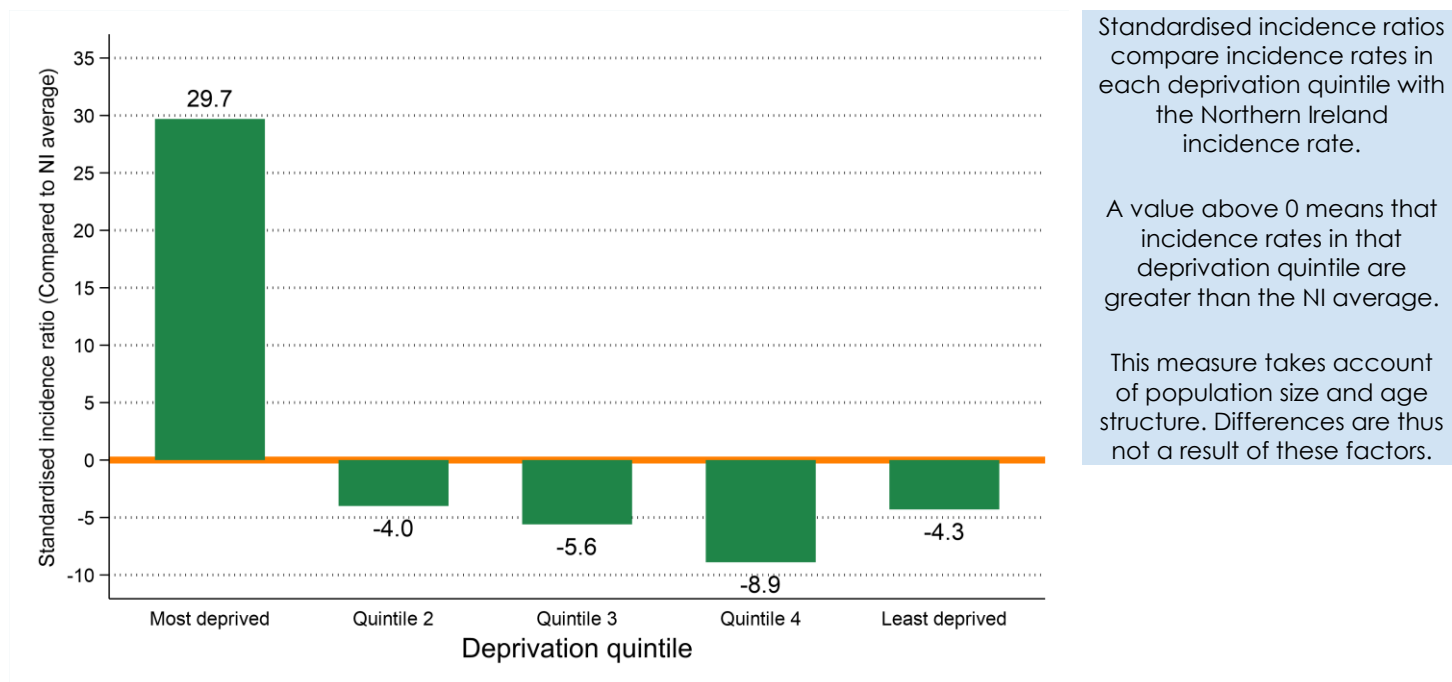
INCIDENCE BY DEPRIVATION

- The number of cases of liver cancer diagnosed during 2017-2021 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 29.7% higher than the NI average.
 - in the least socio-economically deprived areas did not vary significantly from the NI average.

Table 2: Number of cases of liver cancer diagnosed in 2017-2021 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	755	151	516	103	239	48
Most deprived
Quintile 2	159	32	112	22	47	9
Quintile 3	145	29	107	21	38	8
Quintile 4	150	30	89	18	61	12
Least deprived	146	29	103	21	43	9
Unknown	155	31	105	21	50	10
Unknown	0	0	0	0	0	0

Figure 8: Standardised incidence ratio comparing deprivation quintile to Northern Ireland for liver cancer diagnosed in 2017-2021



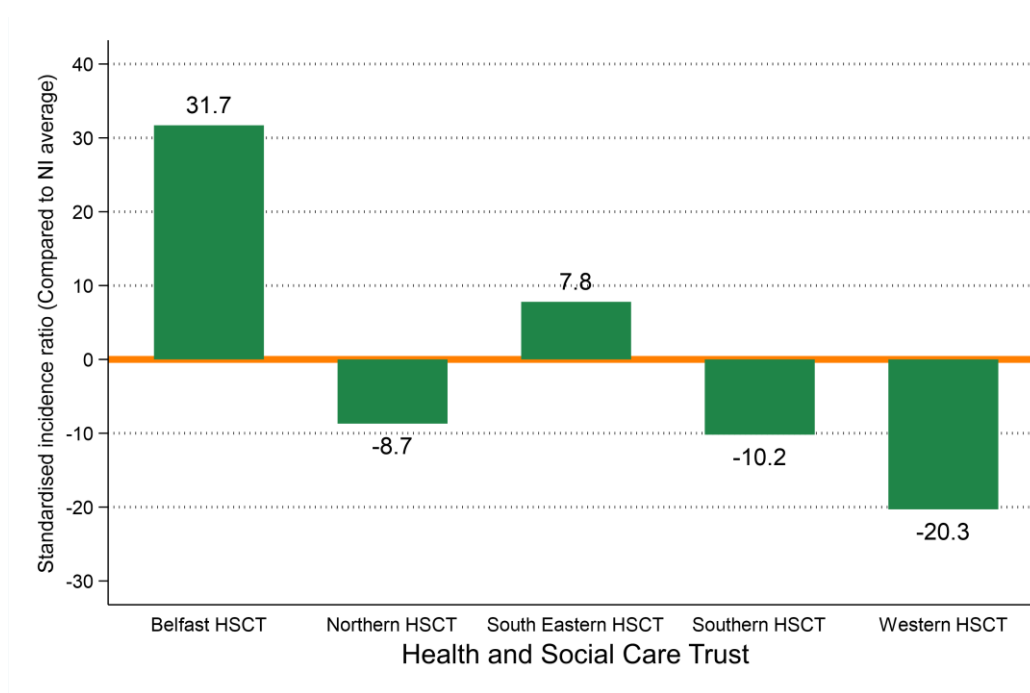
INCIDENCE BY HEALTH AND SOCIAL CARE TRUST

- The number of cases of liver cancer diagnosed during 2017-2021 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 31.7% higher than 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 were 20.3% lower than the NI average.

Table 3: Number of cases of liver cancer diagnosed in 2017-2021 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	755	151	516	103	239	48
Belfast HSCT	179	36	124	25	55	11
Northern HSCT	184	37	127	25	57	11
South Eastern HSCT	173	35	116	23	57	11
Southern HSCT	126	25	85	17	41	8
Western HSCT	93	19	64	13	29	6
Unknown	0	0	0	0	0	0

Figure 9: Standardised incidence ratio comparing Health and Social Care Trust to Northern Ireland for liver cancer diagnosed in 2017-2021



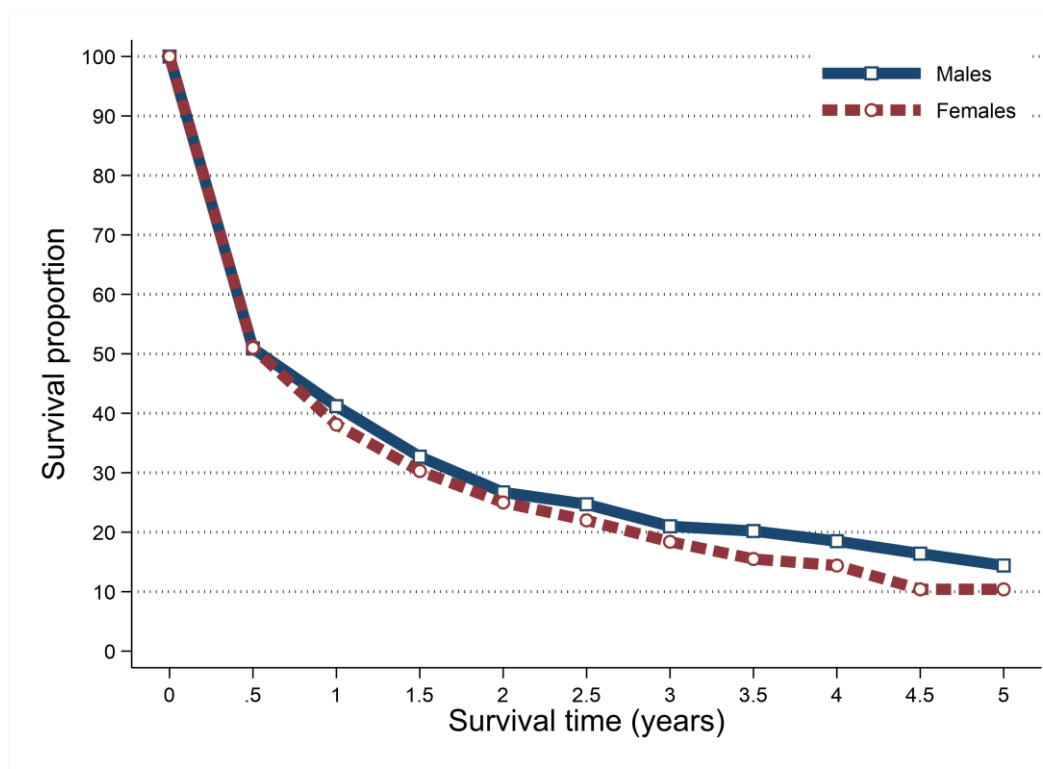
SURVIVAL

- 35.4% of patients were alive one year and 9.9% were alive five years from a liver cancer diagnosis in 2012-2016. (observed survival)
- Age-standardised net survival (ASNS), which removes the effect of deaths from causes unrelated to cancer, was 39.6% one year and 13.4% five years from a liver cancer diagnosis in 2012-2016.
- Five-year survival (ASNS) for liver cancer patients diagnosed in 2012-2016 was 14.4% among men and 10.4% among women.

Table 4: Survival from liver cancer for patients diagnosed in 2012-2016

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	47.8%	50.9%	49.8%	50.9%	43.9%	51.0%
One year	35.4%	39.6%	38.8%	41.2%	28.8%	38.1%
Two years	22.7%	25.9%	25.1%	26.7%	17.9%	25.0%
Five years	9.9%	13.4%	11.4%	14.4%	7.1%	10.4%

Figure 10: Age-standardised net survival from liver cancer for patients diagnosed in 2012-2016



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.

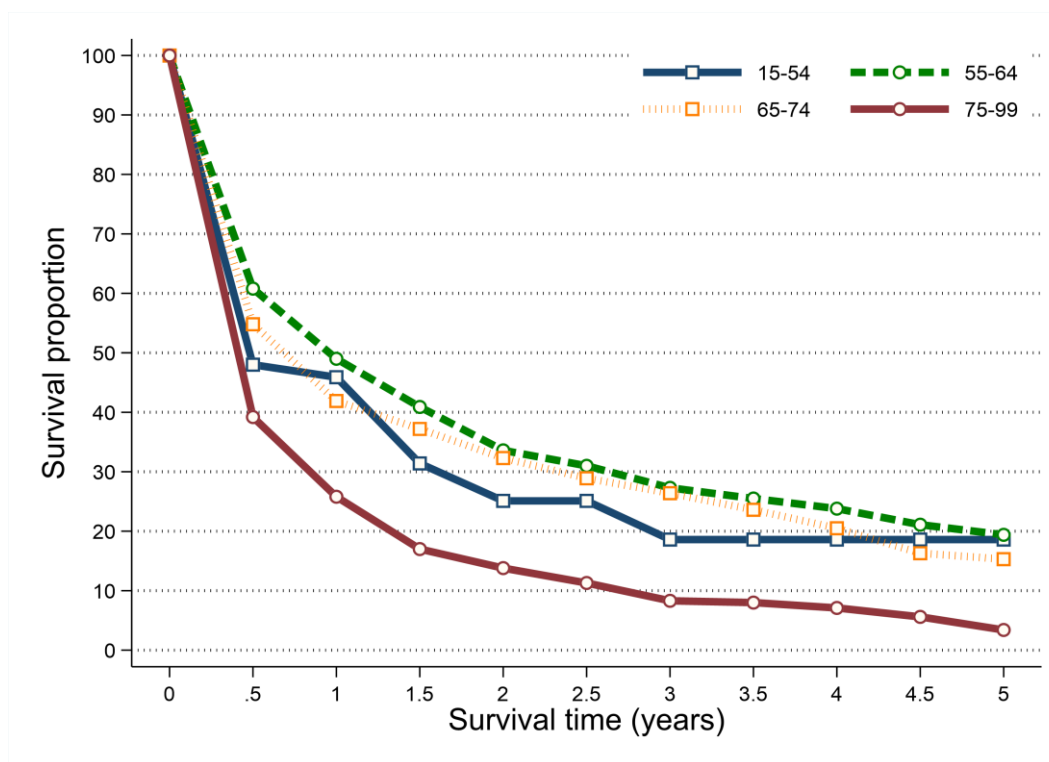
SURVIVAL BY AGE

- Survival from liver cancer among patients diagnosed during 2012-2016 was related to age with better five-year survival among younger age groups.
- Five-year net survival ranged from 19.4% among patients aged 55 to 64 at diagnosis to 3.4% among those aged 75 to 99.

Table 5: Net survival from liver cancer for patients diagnosed in 2012-2016 by age at diagnosis

Age group	All persons	
	One-year	Five-years
15 to 54	45.9%	18.6%
55 to 64	49.0%	19.4%
65 to 74	41.9%	15.3%
75 to 99	25.8%	3.4%

Figure 11: Net survival from liver cancer for patients diagnosed in 2012-2016 by age at diagnosis

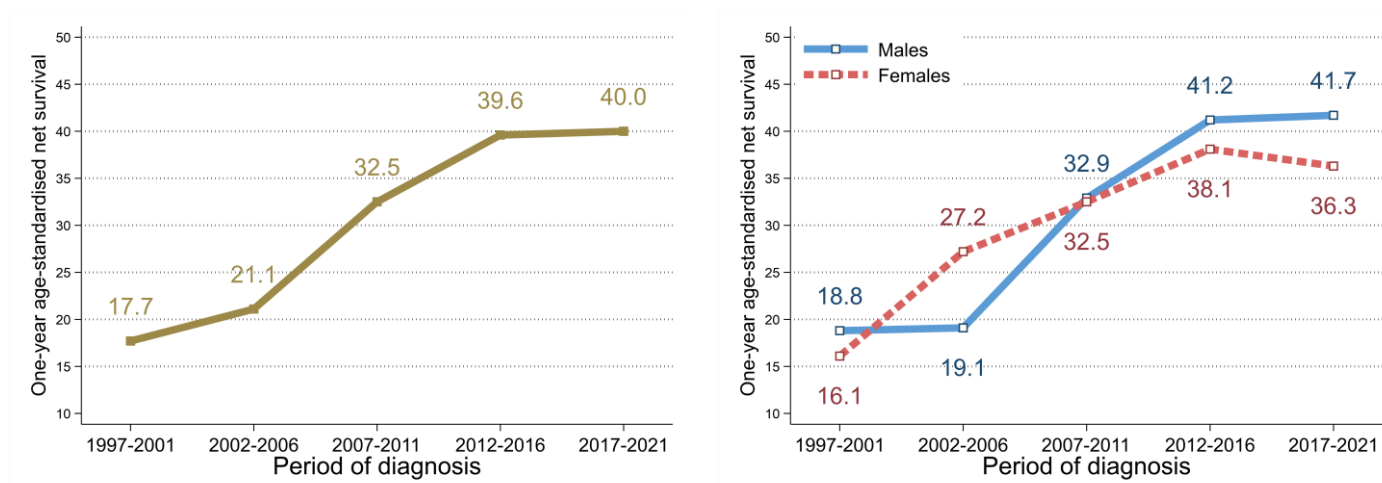


SURVIVAL TRENDS

ONE-YEAR NET SURVIVAL

- Between 2012-2016 and 2017-2021 there was no significant change in one-year survival (ASNS) from liver cancer.
- Compared to 1997-2001 one-year survival (ASNS) from liver cancer in 2017-2021 increased significantly from 17.7% to 40.0%. This increase was significant for males (18.8% to 41.7%) and females (16.1% to 36.3%).

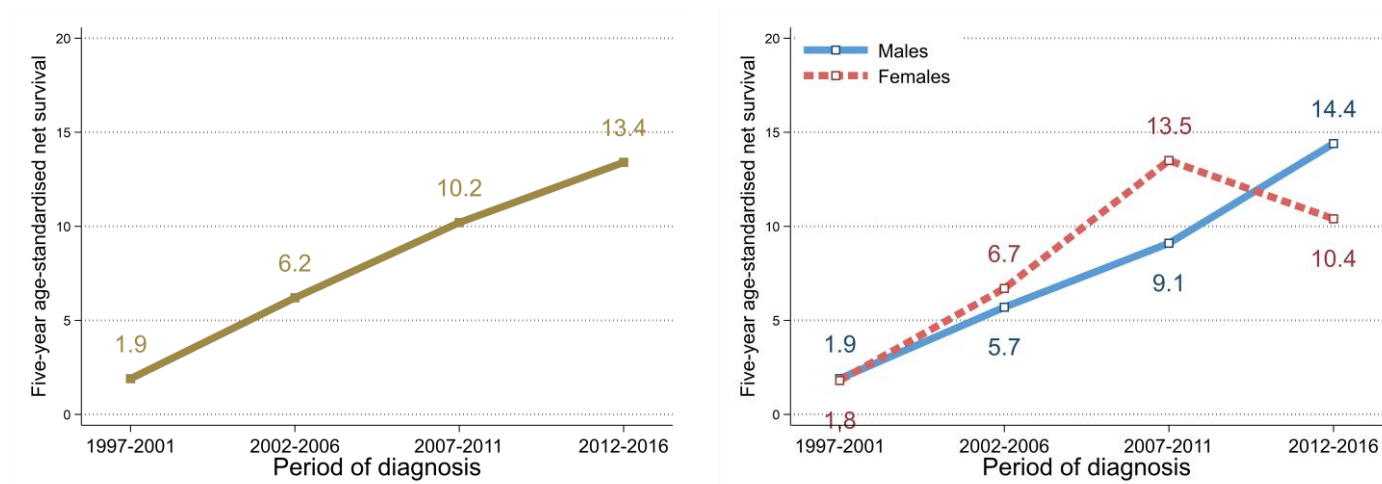
Figure 12: Trends in one-year age-standardised net survival from liver cancer in 1997-2021



FIVE-YEAR NET SURVIVAL

- Between 2007-2011 and 2012-2016 there was no significant change in five-year survival (ASNS) from liver cancer.
- Compared to 1997-2001 five-year survival (ASNS) from liver cancer in 2012-2016 increased significantly from 1.9% to 13.4%. This increase was significant for males (1.9% to 14.4%) and females (1.8% to 10.4%).

Figure 13: Trends in five-year age-standardised net survival from liver cancer in 1997-2016



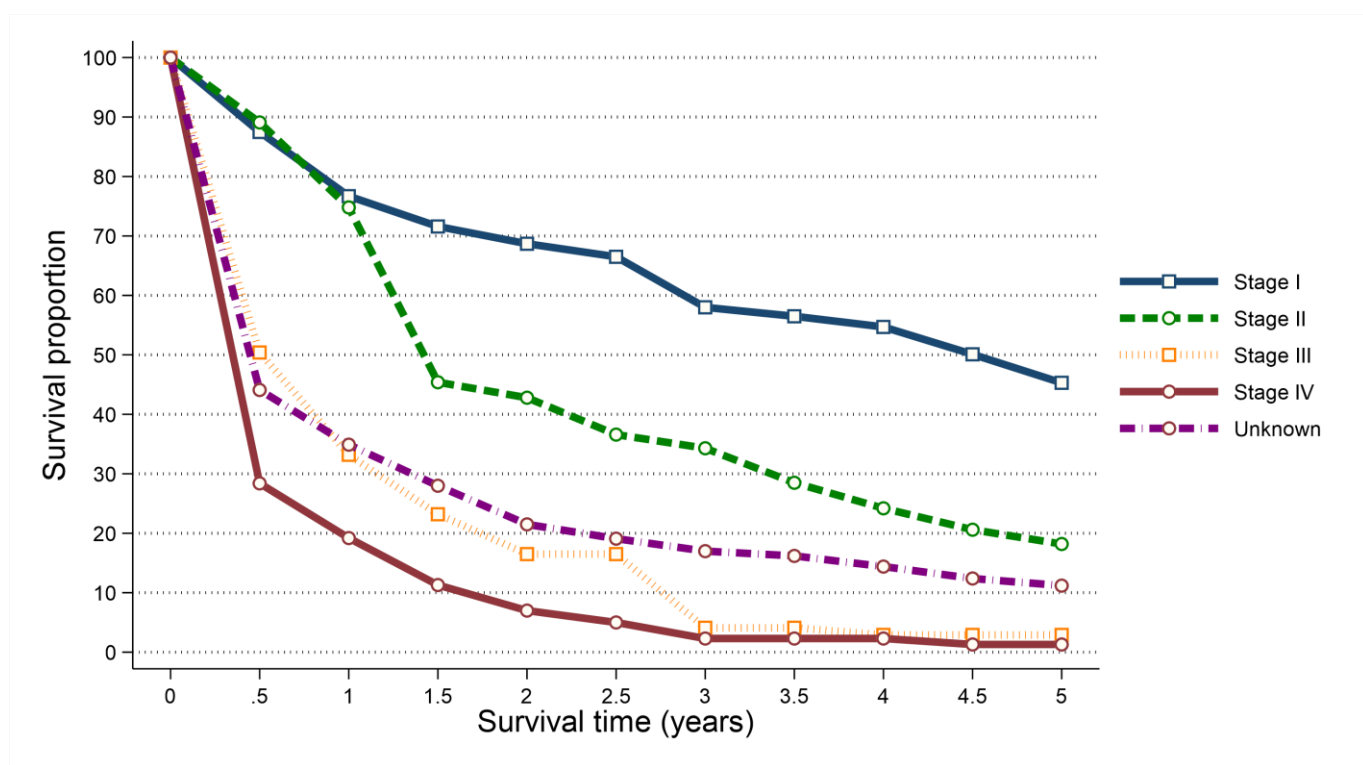
SURVIVAL BY STAGE

- Survival from liver cancer among patients diagnosed during 2012-2016 was strongly related to stage with better five-year survival among those diagnosed at earlier stages.
- Five-year survival (ASNS) ranged from 45.3% among patients diagnosed at Stage I to 1.3% among those diagnosed at Stage IV.

Table 6: Age-standardised net survival from liver cancer for patients diagnosed in 2012-2016 by stage at diagnosis

Stage at diagnosis	All persons	
	One-year	Five-years
Stage I	76.7%	45.3%
Stage II	74.8%	18.2%
Stage III	33.2%	2.9%
Stage IV	19.2%	1.3%
Unknown	34.9%	11.2%

Figure 14: Age-standardised net survival from liver cancer for patients diagnosed in 2012-2016 by stage at diagnosis



PREVALENCE

- At the end of 2021, there were 294 people (Males: 204; Females: 90) living with liver cancer who had been diagnosed with the disease during 1997-2021.
- Of these 31.3% had been diagnosed in the previous year (one-year prevalence) and 87.8% in the previous 10 years (ten-year prevalence).
- 34.4% of liver cancer survivors were aged 75 and over at the end of 2021.

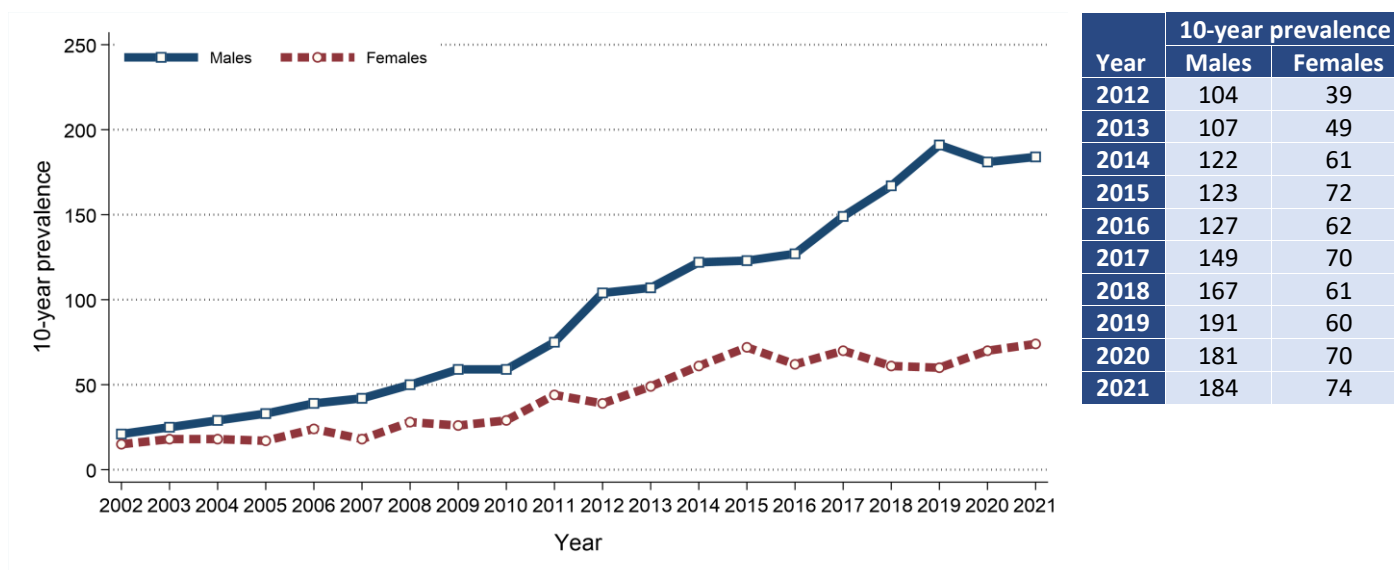
Table 7: 25-year prevalence of liver cancer by age at end of 2021

Gender	Age at end of 2021	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	294	92	115	51	36
	0 to 74	193	59	72	35	27
	75 and over	101	33	43	16	9
Male	All ages	204	63	82	39	20
	0 to 74	132	39	49	28	16
	75 and over	72	24	33	11	4
Female	All ages	90	29	33	12	16
	0 to 74	61	20	23	7	11
	75 and over	29	9	10	5	5

PREVALENCE TRENDS

- 10-year prevalence of liver cancer among males increased between 2016 and 2021 by 44.9% from 127 survivors to 184 survivors.
- 10-year prevalence of liver cancer among females increased between 2016 and 2021 by 19.4% from 62 survivors to 74 survivors.

Figure 15: Trends in 10-year prevalence of liver cancer in 2002-2021



MORTALITY

- There were 800 deaths from liver cancer during 2017-2021 in Northern Ireland. On average this was 160 deaths per year.
- During this period 39.6% of liver cancer deaths were among women (Male deaths: 483, Female deaths: 317). On average there were 97 male and 63 female deaths from liver cancer per year.
- Liver cancer deaths made up 4.1% of all male cancer deaths and 3.0% of all female cancer deaths.
- The median age of patients who died from liver cancer during 2017-2021 was 76 years (Males: 74, Females: 77).
- The risk of dying from liver cancer varied by age, with 49.5% of men and 62.5% of women who died from liver cancer aged 75 and over at death.
- In contrast, 4.9% of patients who died from liver cancer were aged 0 to 54 at death.

Figure 16: Average number of deaths from liver cancer per year in 2017-2021 by age at death

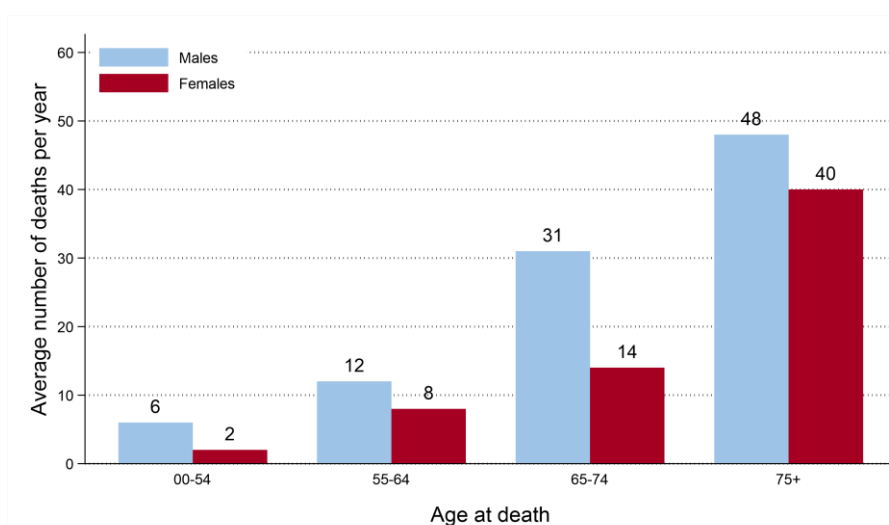
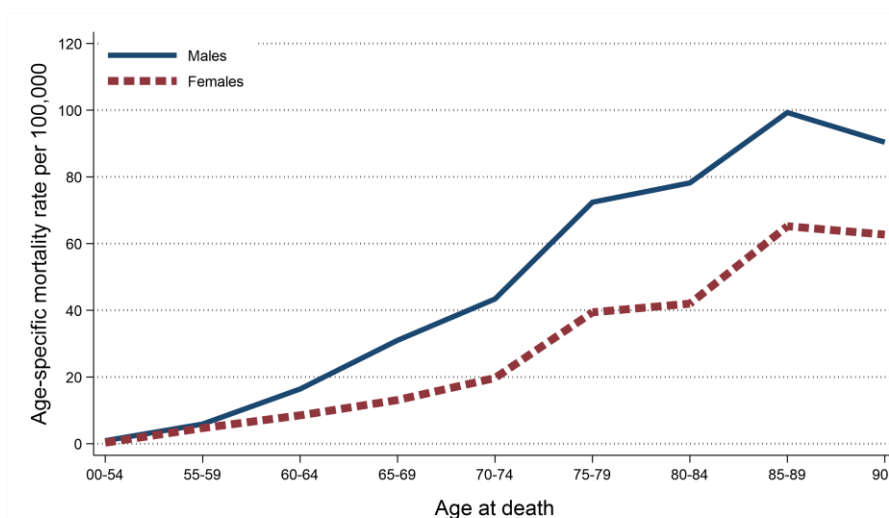


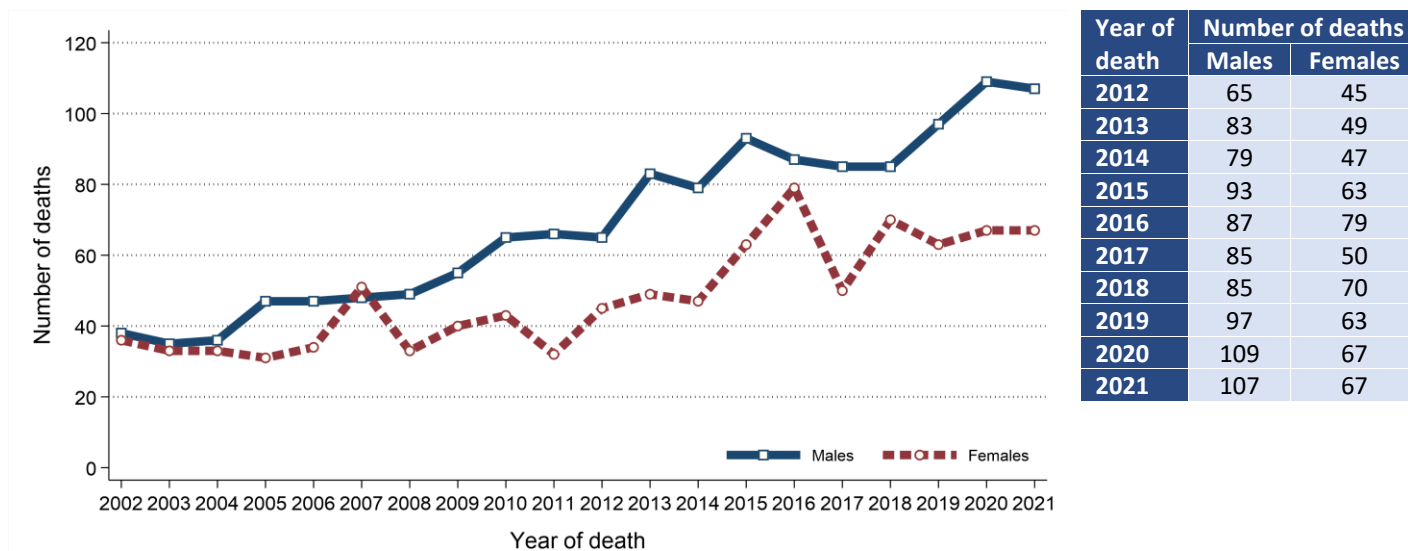
Figure 17: Age-specific mortality rates of liver cancer in 2017-2021



MORTALITY TRENDS

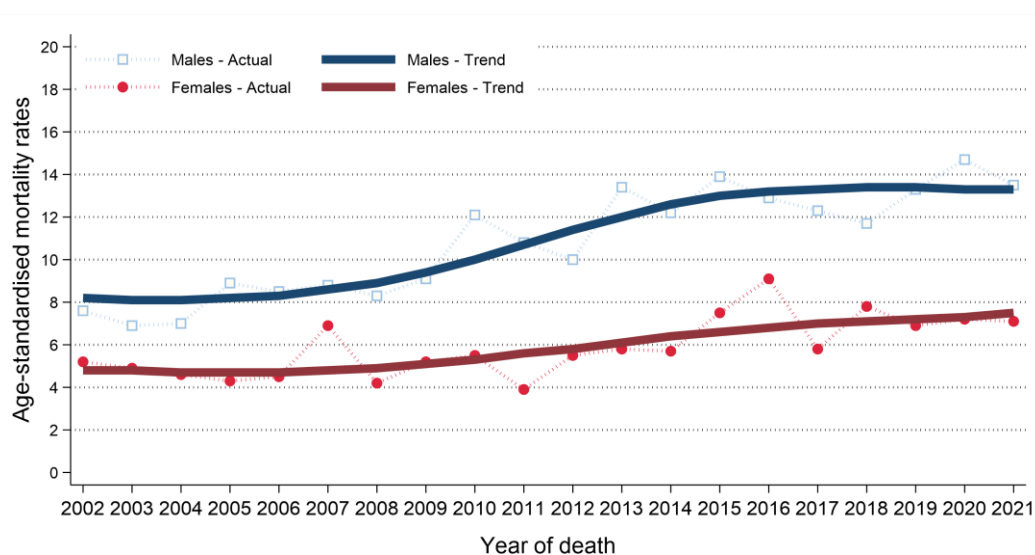
- The number of deaths from liver cancer among males increased between 2012-2016 and 2017-2021 by 18.7% from 407 deaths (81 deaths per year) to 483 deaths (97 deaths per year).
- The number of deaths from liver cancer among females increased between 2012-2016 and 2017-2021 by 12.0% from 283 deaths (57 deaths per year) to 317 deaths (63 deaths per year).

Figure 18: Trends in the number of deaths from liver cancer from 2002 to 2021



- Male age-standardised liver cancer mortality rates increased between 2012-2016 and 2017-2021 by 4.8% from 12.5 to 13.1 deaths per 100,000 males. This change was not statistically significant.
- Female age-standardised liver cancer mortality rates increased between 2012-2016 and 2017-2021 by 3.0% from 6.7 to 6.9 deaths per 100,000 females. This change was not statistically significant.

Figure 19: Trends in mortality rates of liver cancer from 2002 to 2021



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 Jan 2023 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. liver 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. liver 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 2021 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.