

# Liver cancer

Patients diagnosed 1993-2020  
(ICD10: C22)

## Further information

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Further data is available at: [www.qub.ac.uk/research-centres/nicr](http://www.qub.ac.uk/research-centres/nicr)

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## Acknowledgements

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The Northern Ireland Cancer Registry (NICR) is funded by the Public Health Agency and is based in Queen's University, Belfast. NICR uses data provided by patients and collected by the health service as part of their care and support.

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.



# Incidence

During 2016-2020:

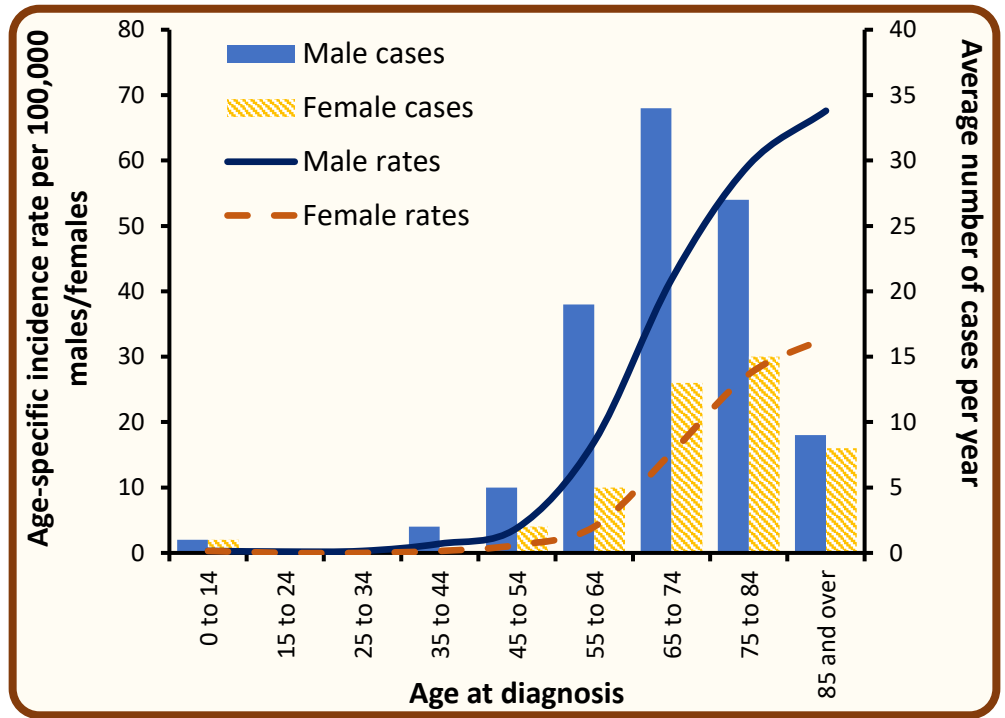
- There were 96 male and 44 female cases of liver cancer diagnosed each year.
- The risk of developing liver cancer before the age of 75 was 1 in 153 for men and 1 in 468 for women, while before the age of 85 the risk was 1 in 81 for men and 1 in 207 for women.

## Incidence by age at diagnosis - Liver cancer, Cases in 2016-2020

During 2016-2020:

- The median age at diagnosis was 71 for men and 75 for women.
- Cancer risk increased with age, with 37.5% of men and 52.3% of women aged 75 years or more at diagnosis.
- 6.4% of cases were diagnosed among those aged under 55.

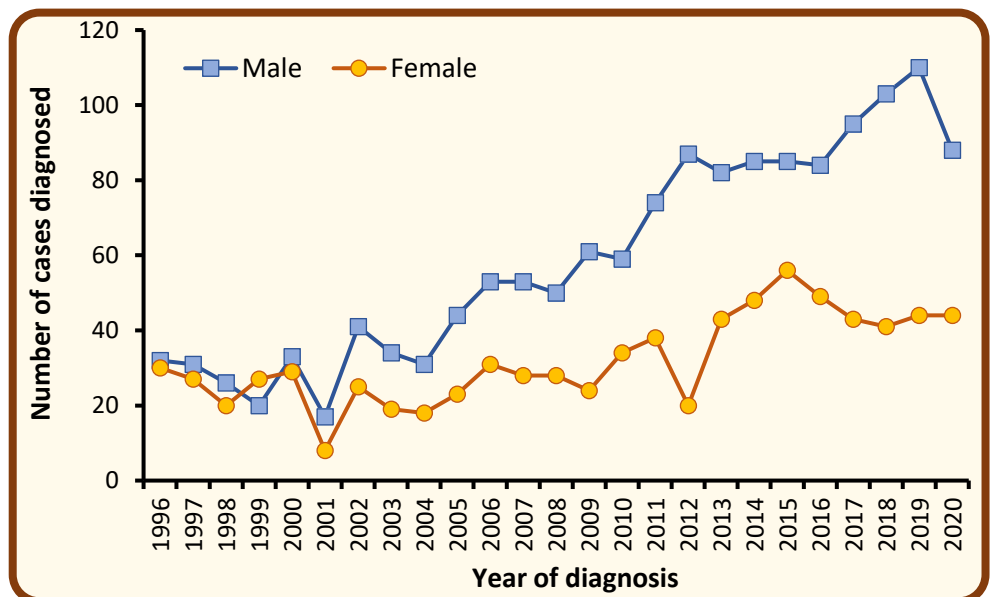
Age at diagnosis	Average cases per year		
	Male	Female	Both sexes
0 - 54	8	3	9
54 - 64	19	5	23
65 - 74	34	13	48
75 +	36	23	59
<b>All ages</b>	<b>96</b>	<b>44</b>	<b>140</b>



## Incidence by year of diagnosis - Liver cancer, Cases in 1996-2020

- Among males the number of cases of liver cancer increased by 15.7% from an annual average of 83 cases in 2011-2015 to 96 cases in 2016-2020.
- Among females the number of cases of liver cancer increased by 7.3% from an annual average of 41 cases in 2011-2015 to 44 cases in 2016-2020.

Year of diagnosis	Male	Female	Both sexes
2011	74	38	112
2012	87	20	107
2013	82	43	125
2014	85	48	133
2015	85	56	141
2016	84	49	133
2017	95	43	138
2018	103	41	144
2019	110	44	154
2020	88	44	132

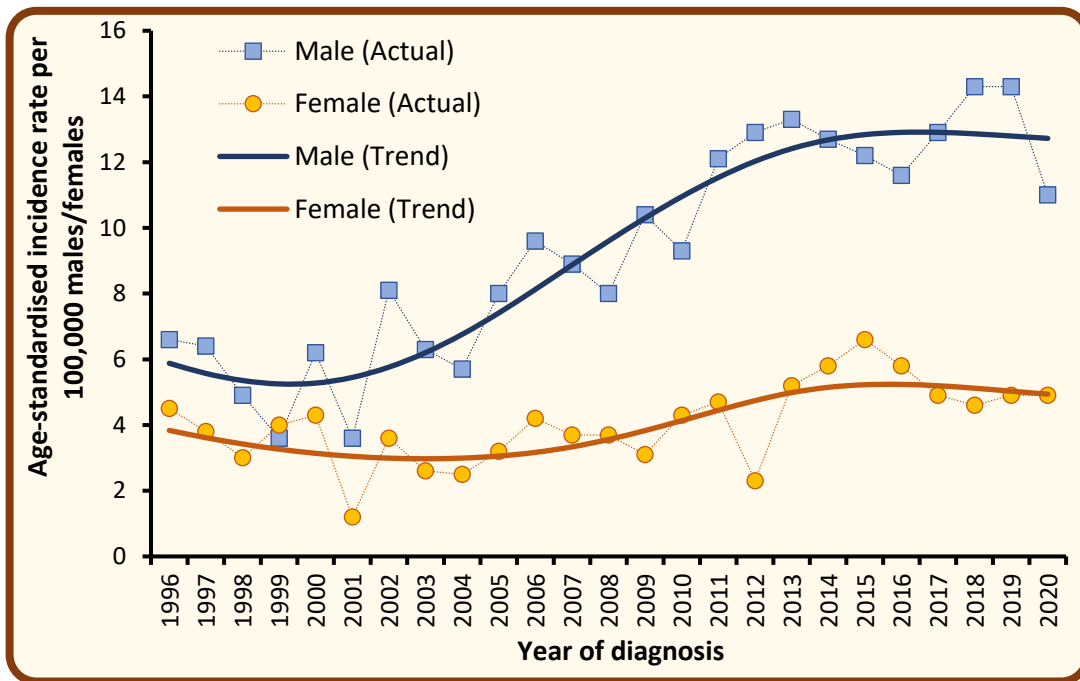


Note: Annual averages have been rounded to the nearest integer. Sums of numbers in table rows or columns may thus differ slightly from the given total.

NMSC: Non-melanoma skin cancer

## Trends in age-standardised incidence rates - Liver cancer, Cases in 1996-2020

- Among males age-standardised incidence rates of liver cancer increased by 1.6% from 12.6 per 100,000 person years in 2011-2015 to 12.8 cases per 100,000 persons years in 2016-2020. This difference was not statistically significant.
- Among females age-standardised incidence rates of liver cancer increased by 2.0% from 4.9 per 100,000 person years in 2011-2015 to 5.0 cases per 100,000 persons years in 2016-2020. This difference was not statistically significant.



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 quintile - Liver cancer, Cases in 2016-2020

The annual number of cases during 2016-2020 varied in each deprivation quintile due to variations in population size and age.

After accounting for these factors, incidence rates:

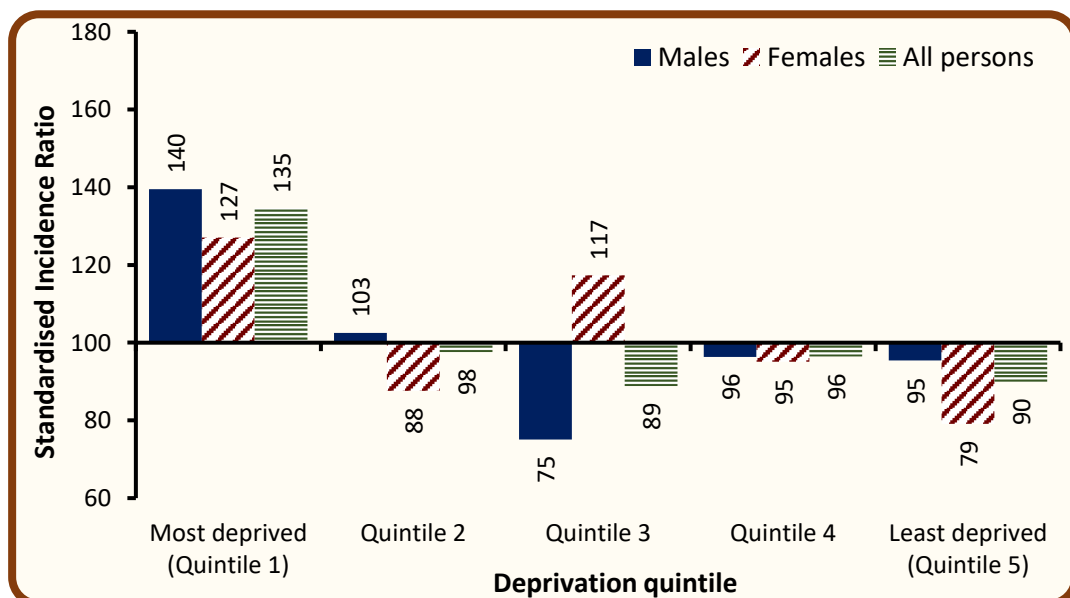
- in the least socio-economically deprived areas did not vary significantly from the NI average.
- in the most socio-economically deprived areas were 34.6% higher than the NI average.

Deprivation quintile	Average cases per year		
	Male	Female	Both sexes
Most deprived (Quintile 1)	22	9	31
Quintile 2	20	8	27
Quintile 3	15	11	26
Quintile 4	20	9	29
Least deprived (Quintile 5)	19	8	27
Northern Ireland	96	44	140

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

A value above 100 means that incidence rates in that deprivation quintile are greater than the Northern Ireland average.

This measure takes account of population size and age structure. Differences are thus not a result of these factors.



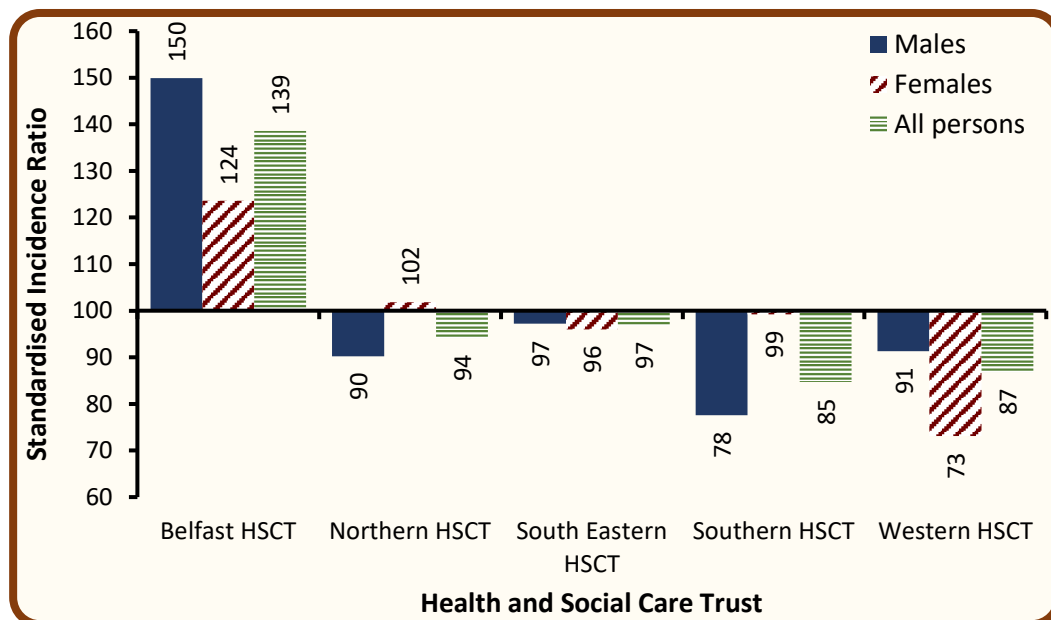
## Incidence by Health and Social Care Trust (HSCT) - Liver cancer, Cases in 2016-2020

The annual number of cases during 2016-2020 varied in each HSCT due to variations in population size and age.

After accounting for these factors, incidence rates:

- in Belfast HSCT were significantly 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 did not vary significantly from the NI average.

Health and Social Care Trust	Average cases per year		
	Male	Female	Both sexes
Belfast HSCT	25	10	35
Northern HSCT	23	12	35
South Eastern HSCT	20	9	29
Southern HSCT	14	8	22
Western HSCT	14	5	19
<b>Northern Ireland</b>	<b>96</b>	<b>44</b>	<b>140</b>



Standardised incidence ratios compare incidence rates in each HSC Trust with the Northern Ireland incidence rate. A value above 100 means that incidence rates in that HSC Trust 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.

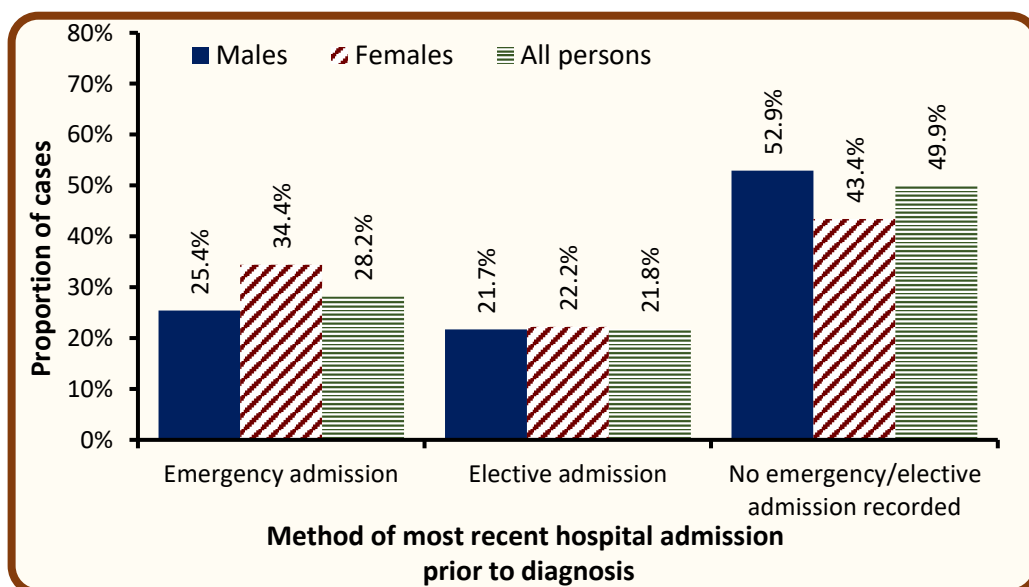
Data for Local Government Districts and Parliamentary Constituencies are available at [www.qub.ac.uk/research-centres/nicr](http://www.qub.ac.uk/research-centres/nicr)

## Incidence by method of most recent admission to hospital - Liver cancer, Cases in 2016-2020

During 2016-2020:

- 28.2% of cases had an emergency admission to hospital recorded up to 30 days prior to their cancer diagnosis.
- 25.4% of male cases had an emergency admission up to 30 days prior to diagnosis, compared to 34.4% of female cases.
- In 49.9% of diagnosed cases there was no record of a hospital inpatient admission up to 30 days prior to diagnosis.

Method of admission	Average cases per year		
	Male	Female	Both sexes
Emergency admission	24	15	40
Elective admission	21	10	31
No emergency/elective admission recorded	51	19	70
<b>Total</b>	<b>96</b>	<b>44</b>	<b>140</b>



Admission method refers to the most recent hospital inpatient admission that a patient had prior to cancer diagnosis, regardless of reason for the admission.

Admissions are considered up to a maximum of 30 days prior to diagnosis. Admissions up to two days post diagnosis are also considered to allow for a reasonable margin or error in data recording.

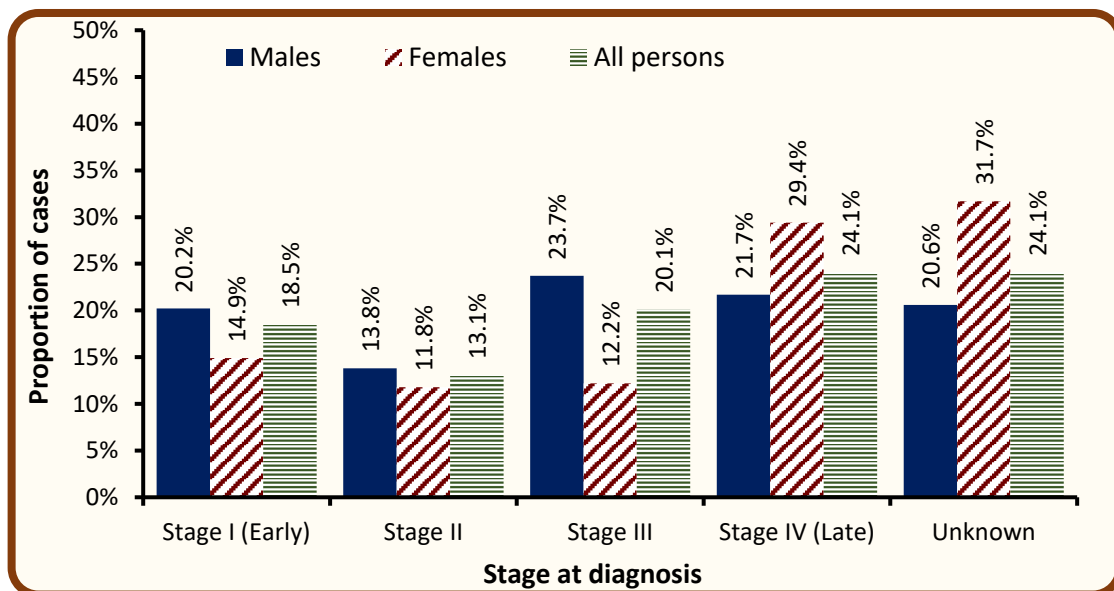
The majority of patients with no inpatient admission recorded prior to diagnosis are likely to have been diagnosed via an outpatient route.

## Incidence by stage at diagnosis - Liver cancer, Cases in 2016-2020

During 2016-2020:

- 75.9% of cases diagnosed had a stage assigned.
- 18.5% of cases were diagnosed at stage I. (24.4% of staged cases)
- 24.1% of cases were diagnosed at stage IV. (31.8% of staged cases)
- Among cases which were staged, 27.3% of male cases were diagnosed at stage IV, compared to 43.0% of female cases.

Stage at diagnosis	Average cases per year		
	Male	Female	Both sexes
Stage I (Early)	19	7	26
Stage II	13	5	18
Stage III	23	5	28
Stage IV (Late)	21	13	34
Unknown	20	14	34
<b>All stages</b>	<b>96</b>	<b>44</b>	<b>140</b>



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).

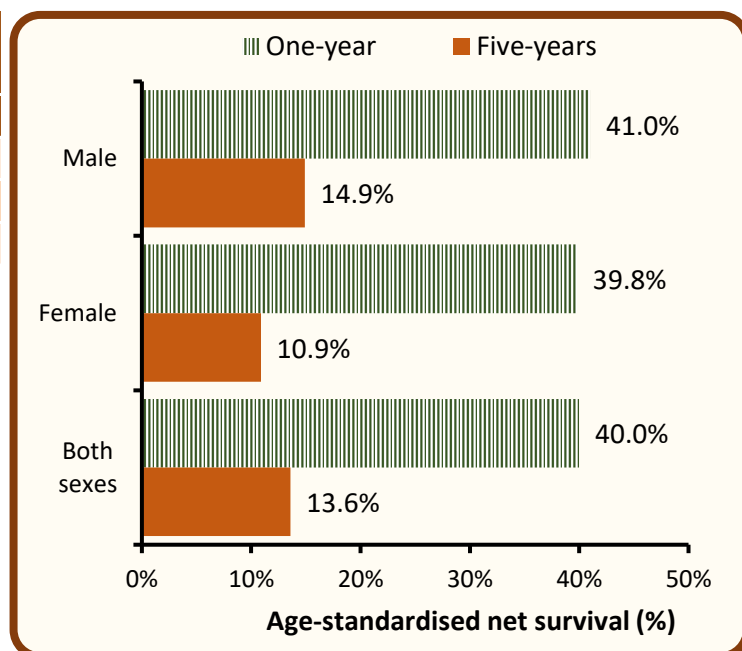
## Survival

- 35.9% of patients were alive one year and 10.5% were alive five years from a liver cancer diagnosis in 2011-2015. (observed survival)
- Age-standardised net survival (ASNS), which removes the effect of deaths from causes unrelated to cancer, was 40.0% one year and 13.6% five years from a liver cancer diagnosis in 2011-2015.
- Five-year survival (ASNS) for liver cancer patients diagnosed in 2011-2015 was 14.9% among men and 10.9% among women.

Gender	Observed survival		Age-standardised net survival	
	One-year	Five-years	One-year	Five-years
Male	37.9%	11.7%	41.0%	14.9%
Female	31.7%	8.0%	39.8%	10.9%
<b>Both sexes</b>	<b>35.9%</b>	<b>10.5%</b>	<b>40.0%</b>	<b>13.6%</b>

Observed survival is the proportion of patients still alive one/five years after diagnosis. However, in this measure patients may have died from causes unrelated to their cancer.

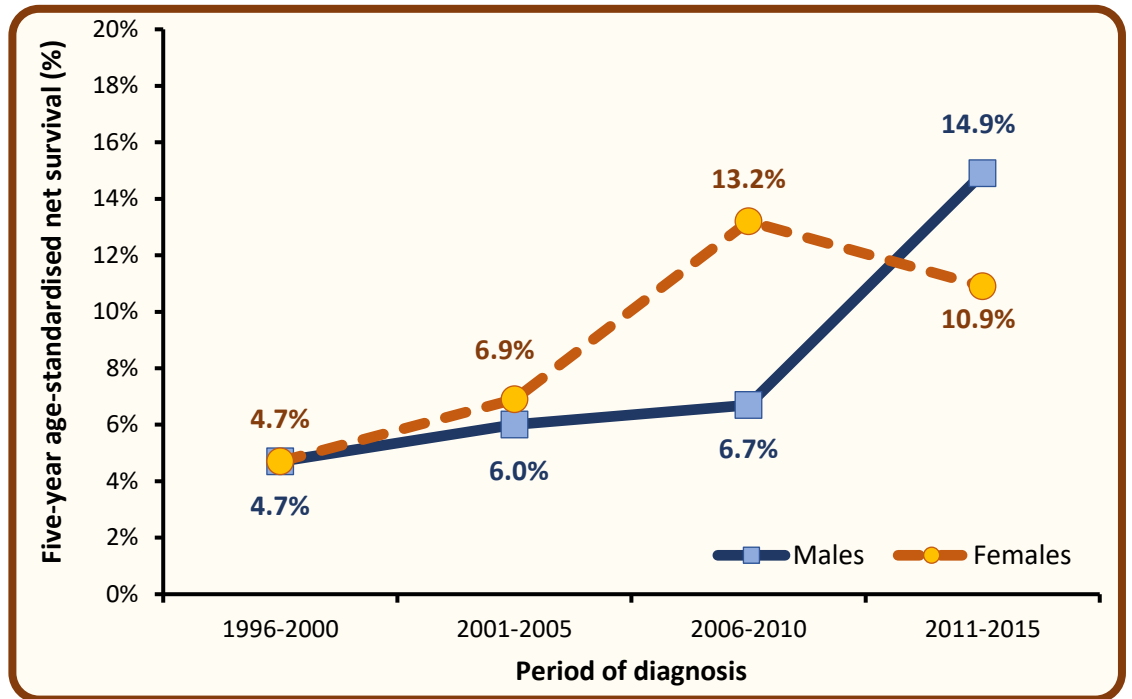
Age-standardised net survival is the proportion of patients who would survive if the patient could not die from causes unrelated to their cancer. This measure is more typically used in studies of cancer survival.



## Trends in survival - Liver cancer, Patients diagnosed in 1996-2015

Among men five-year survival (ASNS) from liver cancer increased from 6.7% in 2006-2010 to 14.9% in 2011-2015. This difference was statistically significant.

Among women five-year survival (ASNS) from liver cancer decreased from 13.2% in 2006-2010 to 10.9% in 2011-2015. This difference was not statistically significant.

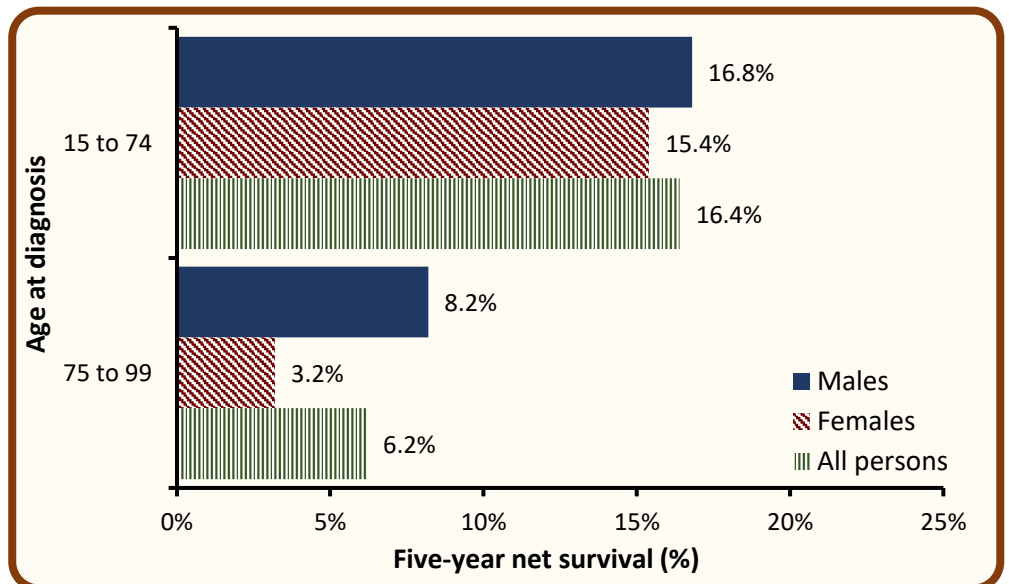


## Survival by age at diagnosis - Liver cancer, Patients diagnosed in 2011-2015

Survival from liver cancer among patients diagnosed in 2011-2015 was related to patient age with five-year survival higher among younger age groups. In particular:

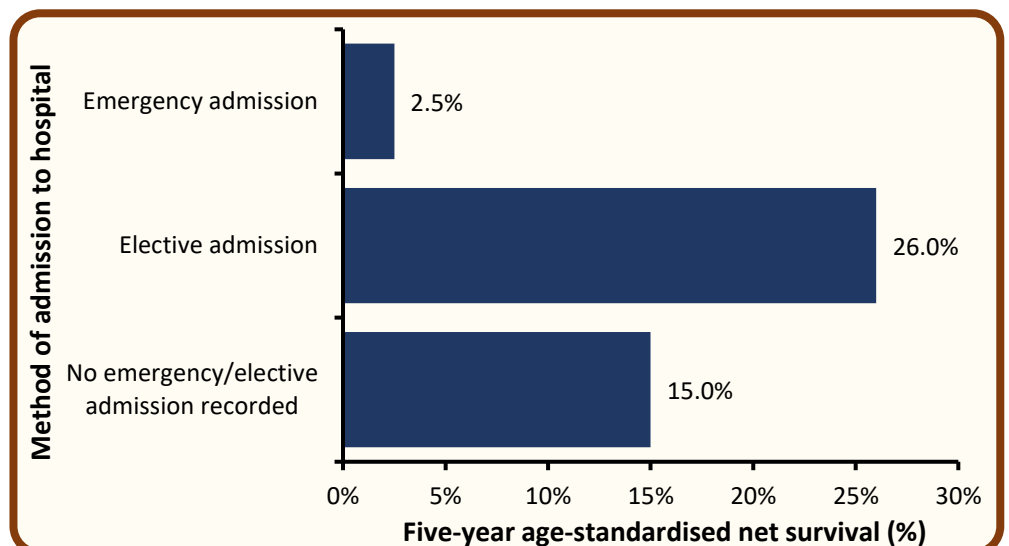
Five-year net survival ranged from 16.4% among patients aged 15 to 74 at diagnosis to 6.2% among those aged 75 and over.

Five-year net survival among patients aged 75 and over was 8.2% for men and 3.2% for women.



## Survival by method of most recent admission to hospital - Liver cancer, Patients diagnosed in 2011-2015

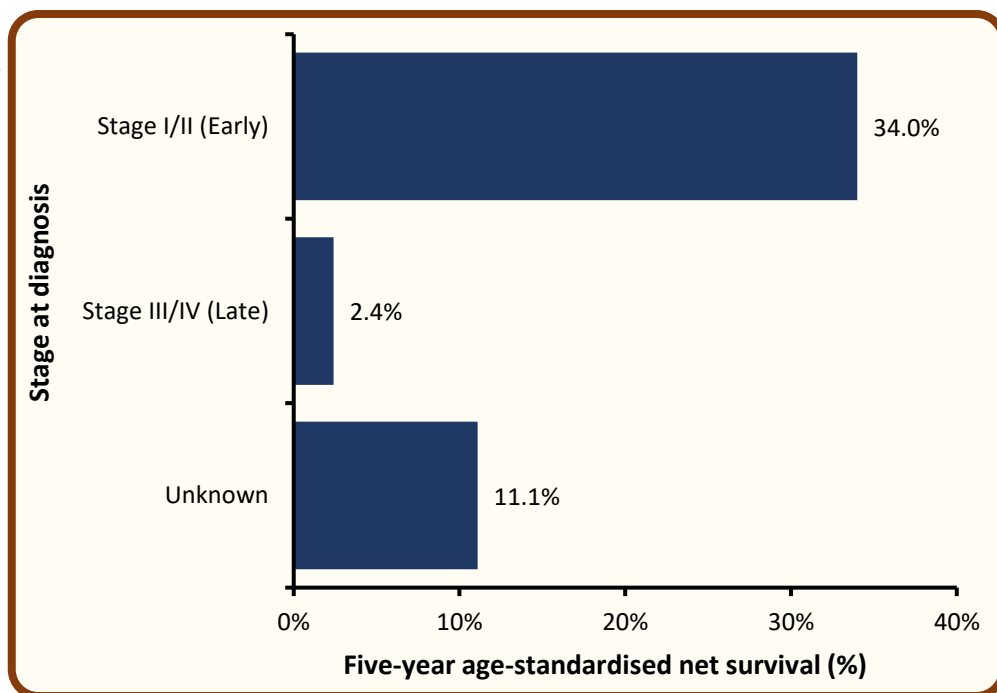
Five-year survival (ASNS) among liver cancer patients who had an emergency admission to hospital up to 30 days prior to their cancer diagnosis was 2.5% compared to 26.0% among those with elective admissions and 15.0% among those who had no hospital admissions recorded up to 30 days prior to diagnosis.



## Survival by stage at diagnosis - Liver cancer, Patients diagnosed in 2012-2015

- Stage at diagnosis is one of the most important factors in liver cancer survival with five-year survival decreasing as stage increases.
- Five-year survival (ASNS) ranged from 34.0% for early stage (stage I/II) disease to 2.4% for late stage (stage III/IV) disease.
- Five-year survival (ASNS) for unstaged cancer was 11.1%.

Note: Staging information for liver cancer is only available from 2012 onwards



## Prevalence

- At the end of 2020, there were 276 people (Males: 194; Females: 82) living with liver cancer who had been diagnosed with the disease during 1996-2020.
- Of these, 70.3% were male, 33.0% were aged 75 and over, and 29.0% had been diagnosed in the previous year.

25-year prevalence refers to the number of cancer survivors who were alive at the end of 2020, and had been diagnosed with their cancer in the previous 25 years (i.e. 1996-2020).

Time since diagnosis	25-year prevalence								
	Aged 0-74			Aged 75+			All ages		
	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes
0-1 year	32	21	53	21	6	27	53	27	80
1-5 years	59	15	74	28	9	37	87	24	111
5-25 years	39	19	58	15	12	27	54	31	85
0-25 years	130	55	185	64	27	91	194	82	276

## Trends in 10-year prevalence - Liver cancer, Patients alive at end of each year from 2011-2020

- Among males the number of survivors from liver cancer who had been diagnosed within the previous ten years increased by 42.7% from 124 survivors in 2015 to 177 survivors in 2020.
- Among females the number of survivors from liver cancer who had been diagnosed within the previous ten years decreased by 9.6% from 73 survivors in 2015 to 66 survivors in 2020.

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Male	76	105	108	123	124	129	151	168	192	177
Female	45	40	50	62	73	62	70	62	60	66
Both sexes	121	145	158	185	197	191	221	230	252	243

# Mortality

- During 2016-2020 there were 93 male and 66 female deaths from liver cancer each year.
- Liver cancer made up 4.0% of all male, and 3.1% of all female cancer deaths (ex NMSC).

## Deaths by age at death - Liver cancer, Deaths in 2016-2020

- The median age at death during 2016-2020 was 74 for men and 78 for women.
- Risk of death from liver cancer was strongly related to patient age, with 49.5% of men and 63.6% of women aged 75 years or more at time of death.
- 5.1% of liver cancer deaths occurred among those aged under 55.

Age at death	Average deaths per year		
	Male	Female	Both sexes
0 - 54	5	3	8
55 - 64	13	8	20
65 - 74	28	14	42
75 +	46	42	88
<b>All ages</b>	<b>93</b>	<b>66</b>	<b>158</b>

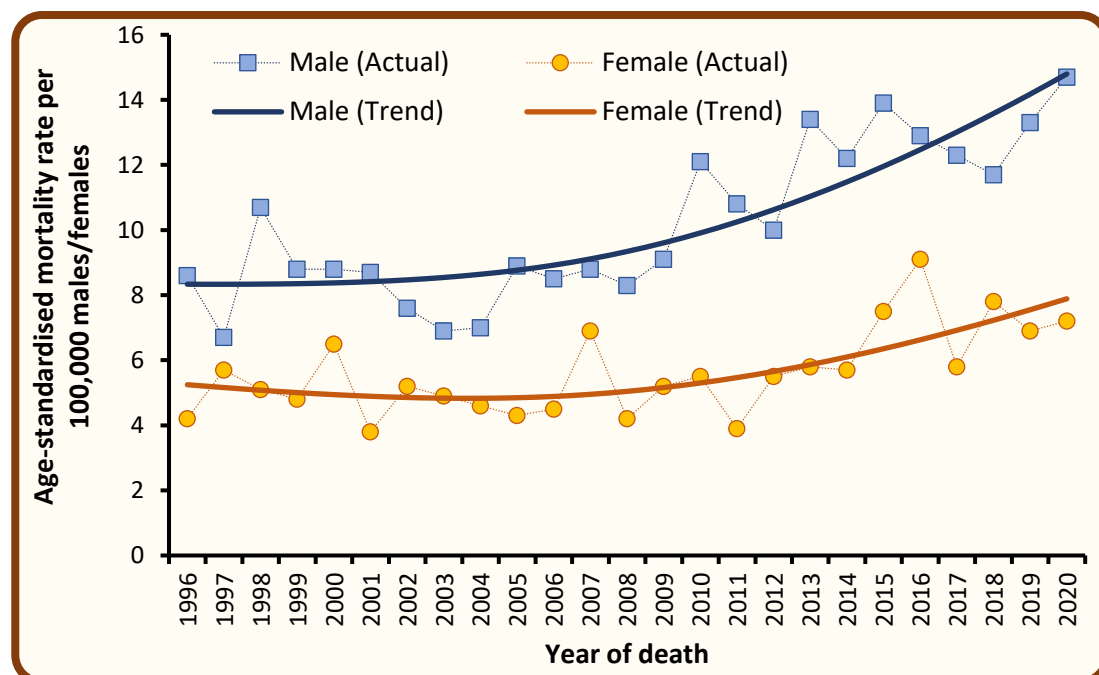
## Deaths by year of death - Liver cancer, Deaths in 2011-2020

- Among males the number of deaths from liver cancer increased by 20.8% from an annual average of 77 deaths in 2011-2015 to 93 deaths in 2016-2020.
- Among females the number of deaths from liver cancer increased by 40.4% from an annual average of 47 deaths in 2011-2015 to 66 deaths in 2016-2020.

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
<b>Male</b>	66	65	83	79	93	87	85	85	97	109
<b>Female</b>	32	45	49	47	63	79	50	70	63	67
<b>Both sexes</b>	98	110	132	126	156	166	135	155	160	176

## Trends in age-standardised mortality rates - Liver cancer, Deaths in 1996-2020

- Among males age-standardised mortality rates from liver cancer increased by 7.4% between 2011-2015 and 2016-2020 from 12.1 to 13.0 deaths per 100,000 persons years. This difference was not statistically significant.
- Among females age-standardised mortality rates from liver cancer increased by 28.1% between 2011-2015 and 2016-2020 from 5.7 to 7.3 deaths per 100,000 persons years. This difference was statistically significant.



Mortality data are provided by the Northern Ireland General Registrar Office via the Department of Health.

Counts of the number of deaths are based upon the year that death occurred, and upon the primary cause of death only.

Age-standardised mortality rates remove changes over time caused by population growth and/or ageing.



## 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** 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](http://www.nisra.gov.uk)).

**Geographic areas** are assigned based on a patient's postcode of usual residence at diagnosis using the Jan 2021 Central Postcode Directory (CPD) produced by the NI Statistics and Research Agency (available at [www.nisra.gov.uk](http://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](http://www.nisra.gov.uk)).

A **crude incidence/mortality rate** is 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.

An **age-standardised incidence/mortality rate** per 100,000 person years is an estimate 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.

A **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** are a measure of the precision of a statistic (e.g. colorectal 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. cervical 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 2020 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.

**Observed survival** refers to the proportion of patients who survive a specified amount of time from their date of diagnosis. Observed survival considers death from any cause and is not adjusted for the age of the patient. Cause of death may be unrelated to the cancer the patient has been diagnosed with.

**Net Survival** is an estimate of survival where the effect on survival of background population mortality rates has been removed. It represents the [theoretical] survival of cancer patients if they could only die from cancer-related causes. Age-standardised net survival estimates are the estimates that would occur if that population of cancer patients had a standard population age structure. The age groups and weights used here are those used by international studies such as EUROCARE, an international study group that compares cancer survival among European countries. However, due to the small number of patients in NI, the first two age categories in the standard population are combined.

**Mortality:** Information relating to cancer mortality is sourced from the General Registrar Office (GRONI) via the Department of Health (NI). Results are based upon the date on which death occurs, and may thus differ slightly than those produced by the Northern Ireland Statistics and Research Agency (NISRA), which produces deaths data based upon the date on which the death is registered with GRONI.