# Gallbladder and other biliary cancer

## 1993-2021

**(ICD10 codes: C23-C24)**


**Northern Ireland Cancer Registry, 2024**

**An official statistics publication**

# About this report

## Contents

This report includes information on incidence of gallbladder and other biliary 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. Gallbladder and other biliary 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

**Phone:** +44 (0)28 9097 6028 **e-mail:** nicr@qub.ac.uk

## Acknowledgements

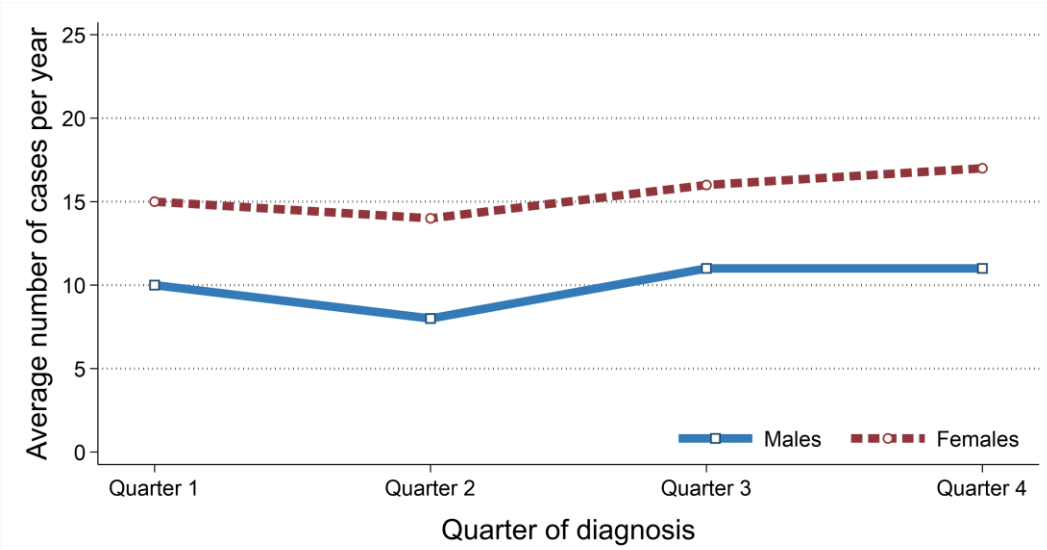
The Northern Ireland Cancer Registry (NICR) uses data provided by patients and collected by the health service as part of their care and support.

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

# INCIDENCE

- There were 515 cases of gallbladder and other biliary cancer diagnosed during 2017-2021 in Northern Ireland. On average this was 103 cases per year.
- During this period 60.4% of gallbladder and other biliary cancer cases were among women (Male cases: 204, Female cases: 311). On average there were 41 male and 62 female cases of gallbladder and other biliary cancer per year.
- The most common diagnosis month during 2017-2021 was January and September with 11 cases per year.

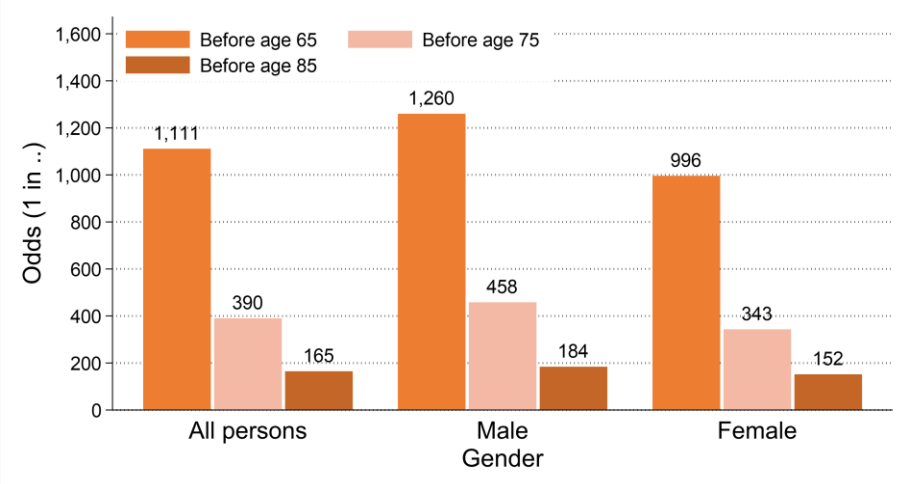
*Figure 1: Average number of cases of gallbladder and other biliary cancer per year in 2017-2021 by quarter of diagnosis*




| Quarter of diagnosis | Average number of cases per year | |
|---|---|---|
| | Males | Females |
| Quarter 1 | 10 | 15 |
| Quarter 2 | 8 | 14 |
| Quarter 3 | 11 | 16 |
| Quarter 4 | 11 | 17 |

- Gallbladder and other biliary cancer made up 0.8% of all male and 1.3% of all female cancer cases (excluding non-melanoma skin cancer).
- The gallbladder and other biliary cancer incidence rates for each gender were 4.4 cases per 100,000 males and 6.5 cases per 100,000 females.
- The odds of developing gallbladder and other biliary cancer before age 85 was 1 in 184 for men and 1 in 152 for women.

*Figure 2: Odds of developing gallbladder and other biliary cancer in 2017-2021*



## INCIDENCE BY AGE

- The median age of patients diagnosed with gallbladder and other biliary cancer during 2017-2021 was 75 years (Males: 75, Females: 76).
- The risk of developing gallbladder and other biliary cancer varied by age, with 50.0% of men and 54.0% of women diagnosed with gallbladder and other biliary cancer aged 75 and over at diagnosis.
- In contrast, 6.4% of patients diagnosed with gallbladder and other biliary cancer were aged 0 to 54 at diagnosis.

*Figure 3: Average number of cases of gallbladder and other biliary cancer diagnosed per year in 2017-2021 by age at diagnosis*

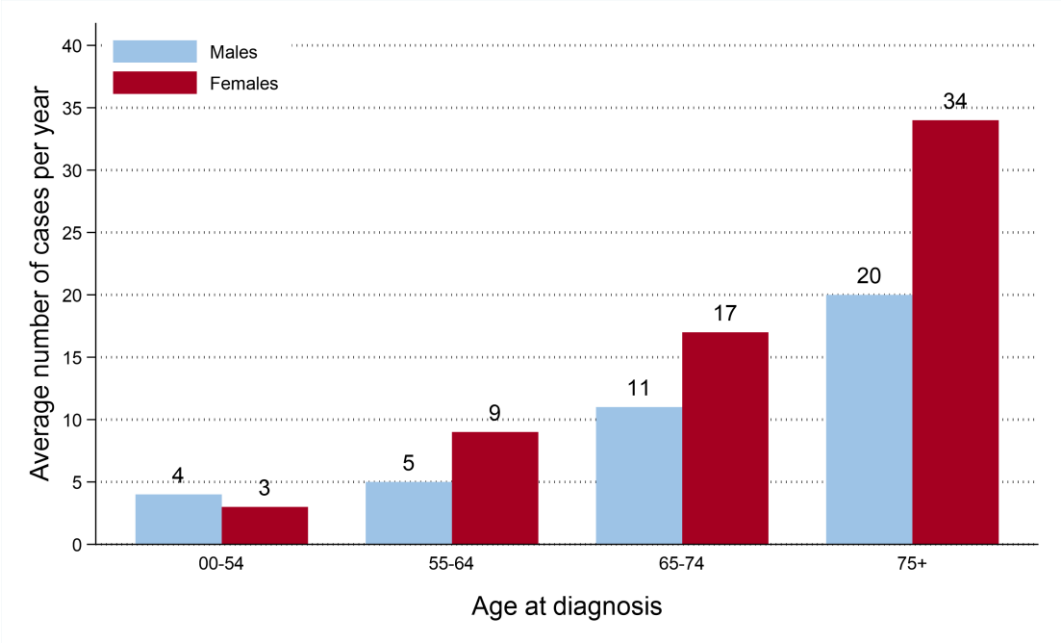
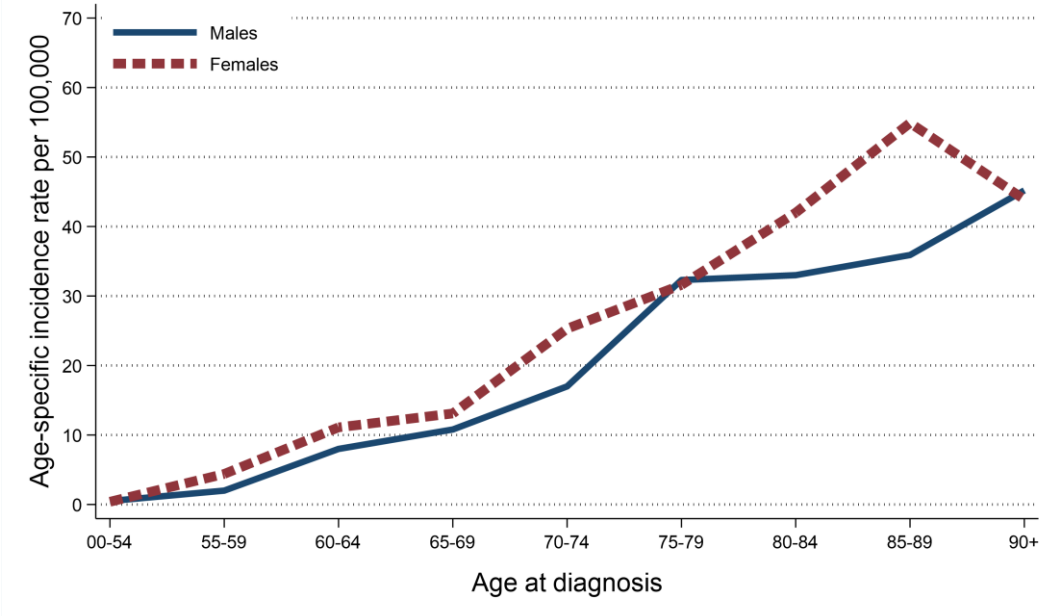


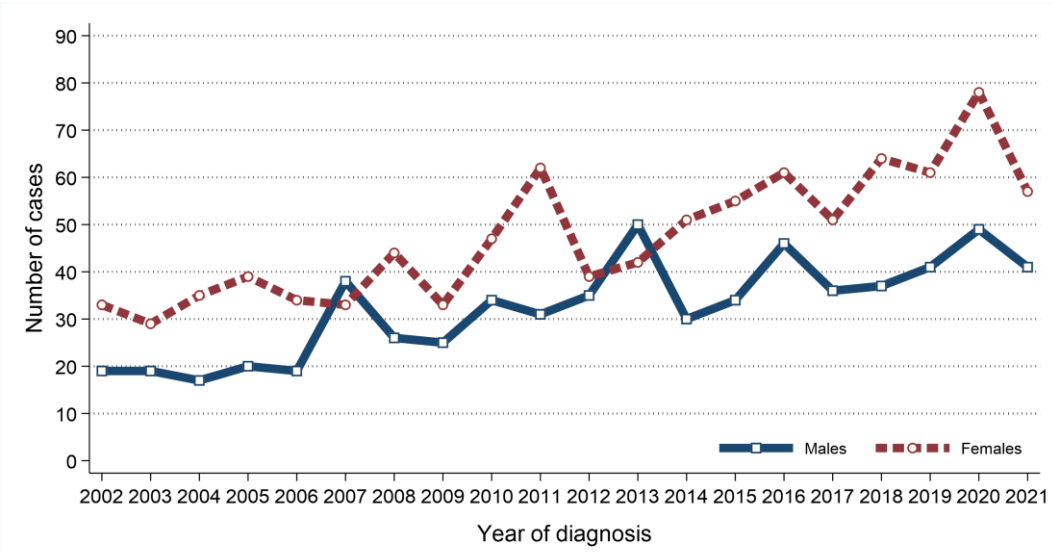

*Figure 4: Age-specific incidence rates of gallbladder and other biliary cancer in 2017-2021*



# INCIDENCE TRENDS

- The number of cases of gallbladder and other biliary cancer among males increased between 2012-2016 and 2017-2021 by 4.6% from 195 cases (39 cases per year) to 204 cases (41 cases per year).
- The number of cases of gallbladder and other biliary cancer among females increased between 2012-2016 and 2017-2021 by 25.4% from 248 cases (50 cases per year) to 311 cases (62 cases per year).

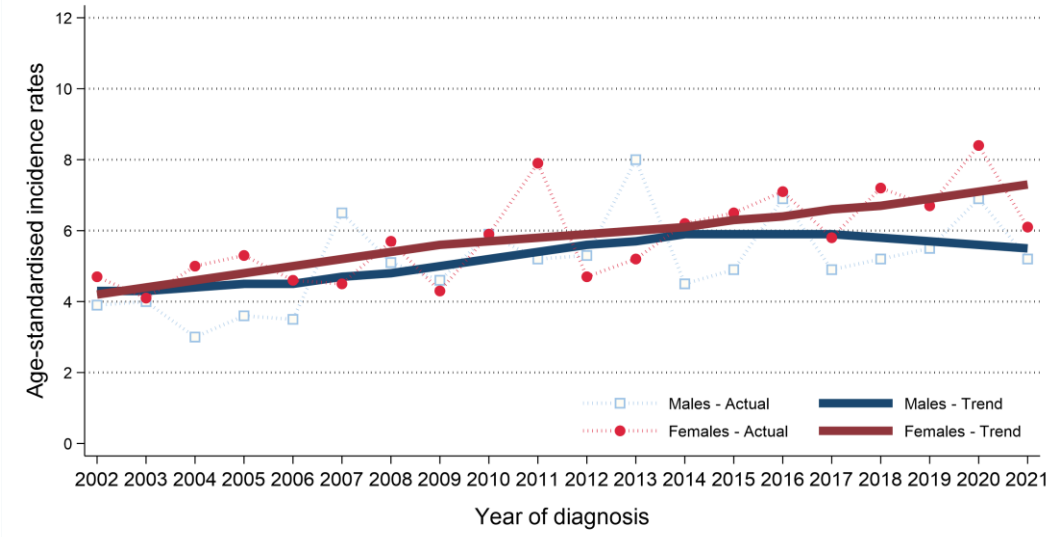
*Figure 5: Trends in number of cases of gallbladder and other biliary cancer diagnosed from 2002 to 2021*




| Year of diagnosis | Number of cases | |
|---|---|---|
| | Males | Females |
| 2012 | 35 | 39 |
| 2013 | 50 | 42 |
| 2014 | 30 | 51 |
| 2015 | 34 | 55 |
| 2016 | 46 | 61 |
| 2017 | 36 | 51 |
| 2018 | 37 | 64 |
| 2019 | 41 | 61 |
| 2020 | 49 | 78 |
| 2021 | 41 | 57 |

- Male age-standardised gallbladder and other biliary cancer incidence rates decreased between 2012-2016 and 2017-2021 by 6.7% from 6.0 to 5.6 cases per 100,000 males. This change was not statistically significant.
- Female age-standardised gallbladder and other biliary cancer incidence rates increased between 2012-2016 and 2017-2021 by 15.3% from 5.9 to 6.8 cases per 100,000 females. This change was not statistically significant.

*Figure 6: Trends in incidence rates of gallbladder and other biliary 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).

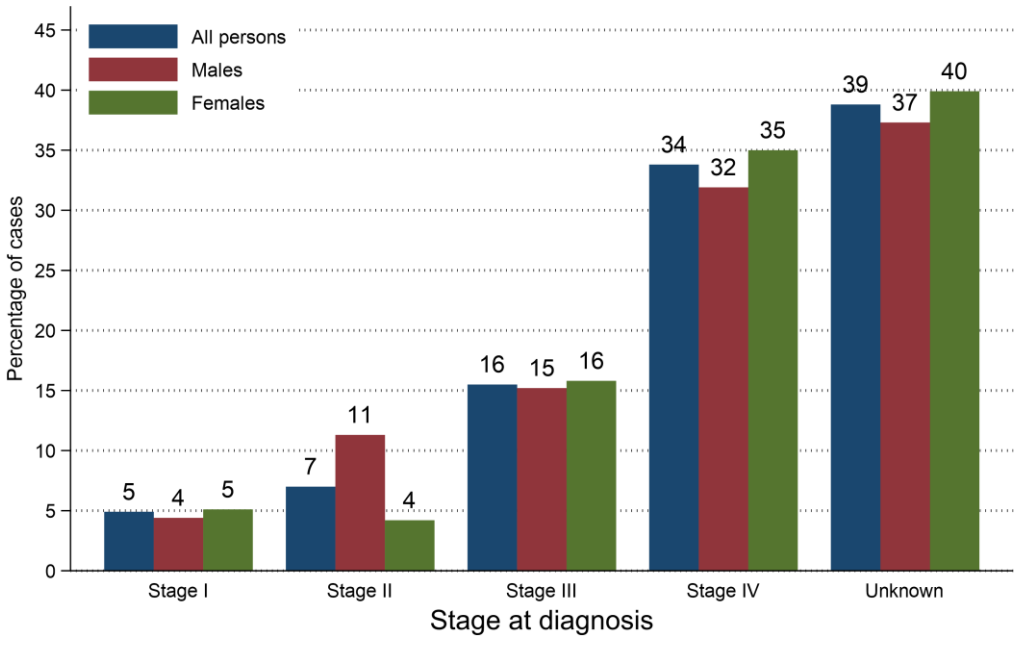
# INCIDENCE BY STAGE AT DIAGNOSIS

- During 2017-2021 61.2% of gallbladder and other biliary cancer cases had a stage assigned.
- 4.9% of gallbladder and other biliary cancer cases were diagnosed at Stage I. (7.9% of staged cases)
- 33.8% of gallbladder and other biliary cancer cases were diagnosed at Stage IV. (55.2% of staged cases)

*Table 1: Number of cases of gallbladder and other biliary 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** | **515** | **103** | **204** | **41** | **311** | **62** |
| | . | . | . | . | . | . |
| **Stage I** | 25 | 5 | 9 | 2 | 16 | 3 |
| **Stage II** | 36 | 7 | 23 | 5 | 13 | 3 |
| **Stage III** | 80 | 16 | 31 | 6 | 49 | 10 |
| **Stage IV** | 174 | 35 | 65 | 13 | 109 | 22 |
| **Unknown** | 200 | 40 | 76 | 15 | 124 | 25 |

*Figure 7: Proportion of cases of gallbladder and other biliary cancer diagnosed in 2017-2021 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).

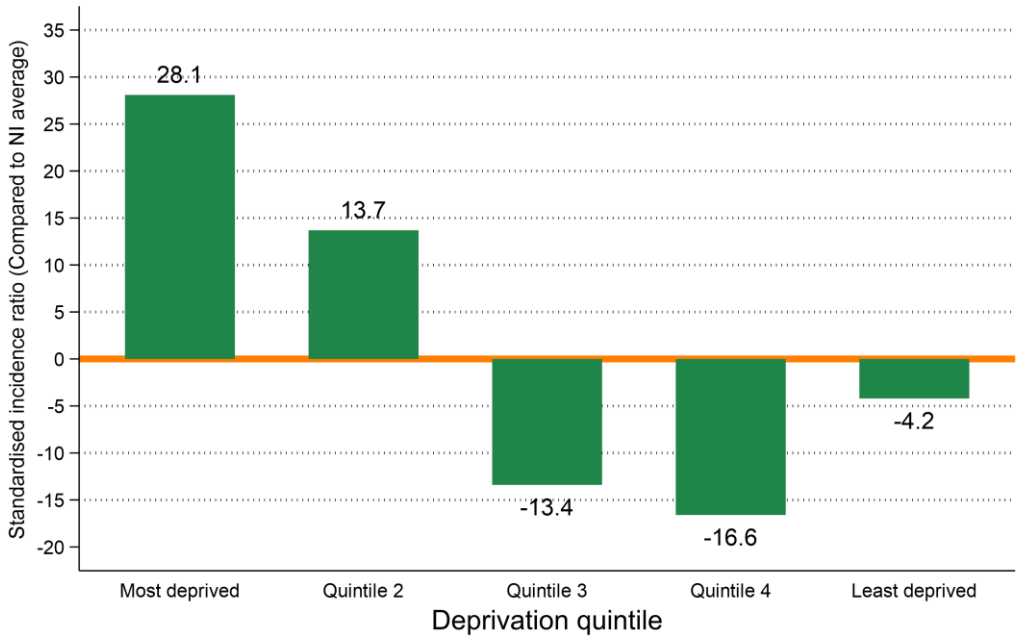
## INCIDENCE BY DEPRIVATION

- The number of cases of gallbladder and other biliary 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 28.1% 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 gallbladder and other biliary 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** | **515** | **103** | **204** | **41** | **311** | **62** |
| | . | . | . | . | . | . |
| **Most deprived** | 106 | 21 | 35 | 7 | 71 | 14 |
| **Quintile 2** | 117 | 23 | 40 | 8 | 77 | 15 |
| **Quintile 3** | 94 | 19 | 36 | 7 | 58 | 12 |
| **Quintile 4** | 91 | 18 | 46 | 9 | 45 | 9 |
| **Least deprived** | 107 | 21 | 47 | 9 | 60 | 12 |
| **Unknown** | 0 | 0 | 0 | 0 | 0 | 0 |

*Figure 8: Standardised incidence ratio comparing deprivation quintile to Northern Ireland for gallbladder and other biliary cancer diagnosed in 2017-2021*




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.

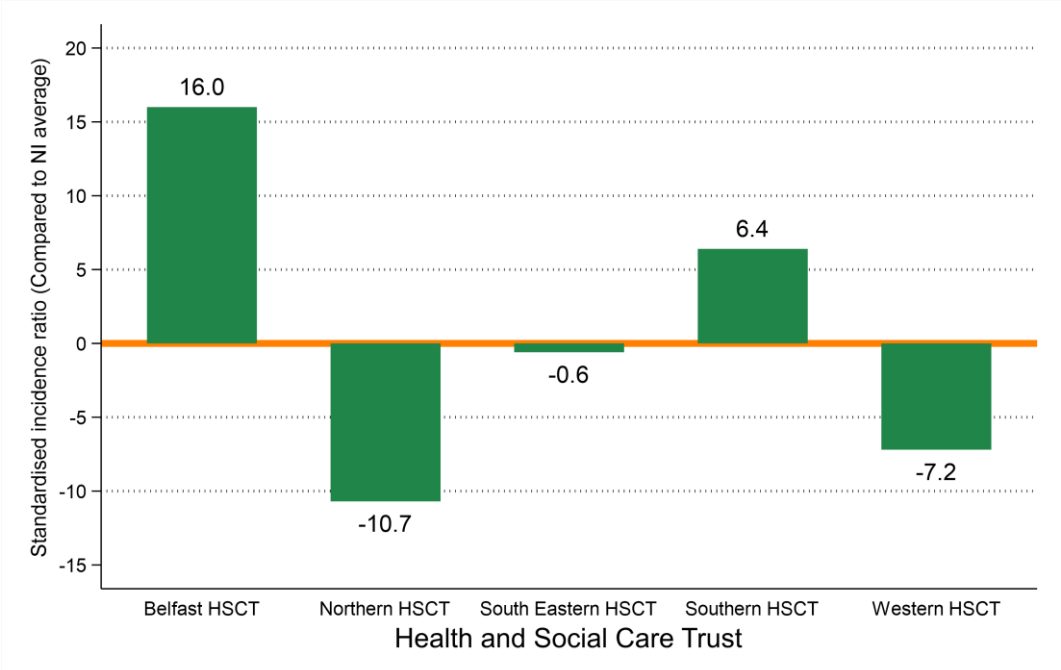
# INCIDENCE BY HEALTH AND SOCIAL CARE TRUST

- The number of cases of gallbladder and other biliary 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 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 gallbladder and other biliary 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** | **515** | **103** | **204** | **41** | **311** | **62** |
| | . | . | . | . | . | . |
| **Belfast HSCT** | 109 | 22 | 40 | 8 | 69 | 14 |
| **Northern HSCT** | 123 | 25 | 49 | 10 | 74 | 15 |
| **South Eastern HSCT** | 109 | 22 | 44 | 9 | 65 | 13 |
| **Southern HSCT** | 101 | 20 | 42 | 8 | 59 | 12 |
| **Western HSCT** | 73 | 15 | 29 | 6 | 44 | 9 |
| **Unknown** | 0 | 0 | 0 | 0 | 0 | 0 |

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



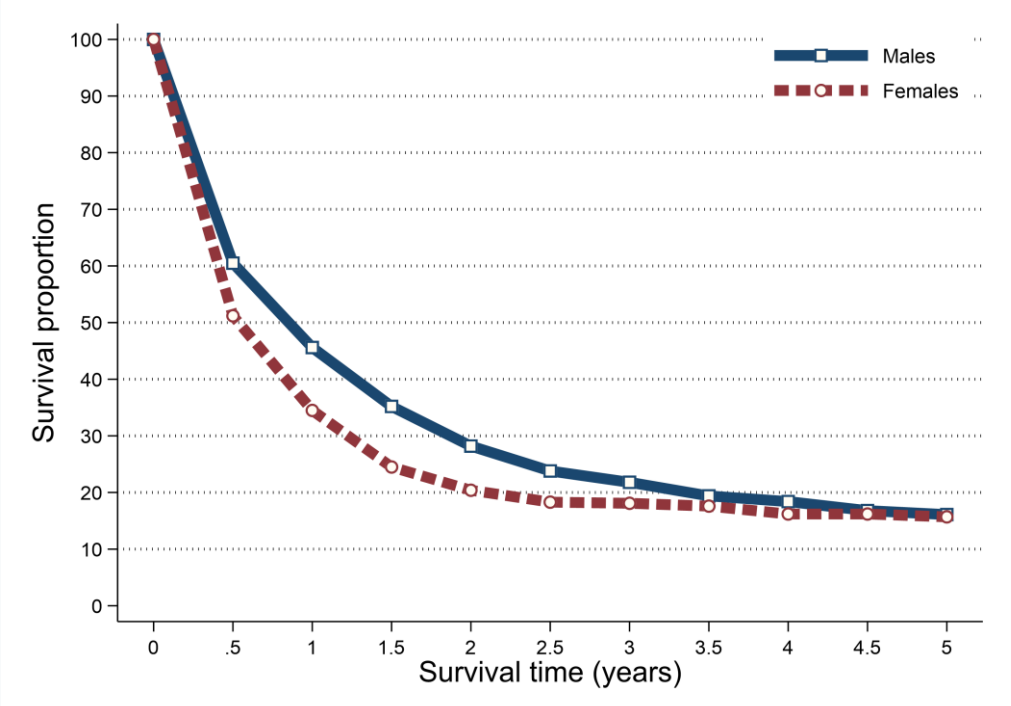
# SURVIVAL

- 33.6% of patients were alive one year and 10.5% were alive five years from a gallbladder and other biliary cancer diagnosis in 2012-2016. (observed survival)
- Age-standardised net survival (ASNS), which removes the effect of deaths from causes unrelated to cancer, was 39.4% one year and 15.8% five years from a gallbladder and other biliary cancer diagnosis in 2012-2016.
- Five-year survival (ASNS) for gallbladder and other biliary cancer patients diagnosed in 2012-2016 was 16.1% among men and 15.7% among women.

*Table 4: Survival from gallbladder and other biliary 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 | 49.7% | 55.3% | 56.2% | 60.5% | 44.5% | 51.2% |
| One year | 33.6% | 39.4% | 38.7% | 45.6% | 29.5% | 34.5% |
| Two years | 19.1% | 23.8% | 21.6% | 28.2% | 17.1% | 20.4% |
| Five years | 10.5% | 15.8% | 10.3% | 16.1% | 10.7% | 15.7% |

*Figure 10: Age-standardised net survival from gallbladder and other biliary 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.

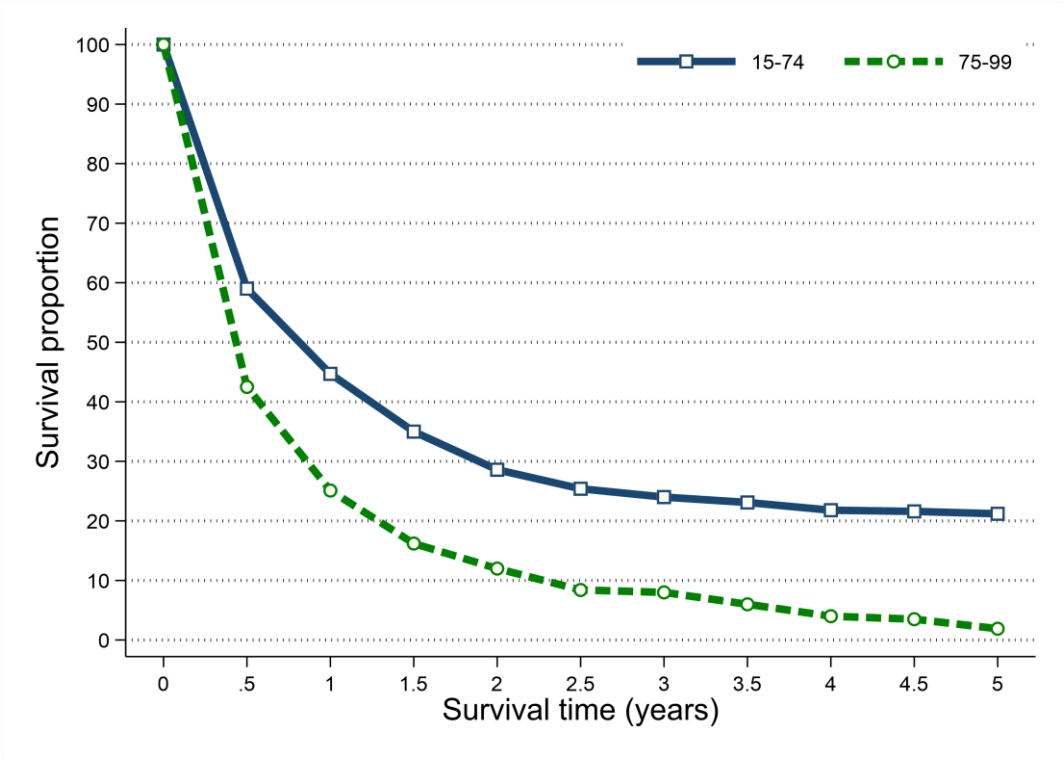
## SURVIVAL BY AGE

- Survival from gallbladder and other biliary 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 21.2% among patients aged 15 to 74 at diagnosis to 1.9% among those aged 75 to 99.

*Table 5: Net survival from gallbladder and other biliary cancer for patients diagnosed in 2012-2016 by age at diagnosis*

| Age group | All persons | |
|---|---|---|
| | One-year | Five-years |
| 15 to 74 | 44.7% | 21.2% |
| 75 to 99 | 25.1% | 1.9% |

*Figure 11: Net survival from gallbladder and other biliary cancer for patients diagnosed in 2012-2016 by age at diagnosis*

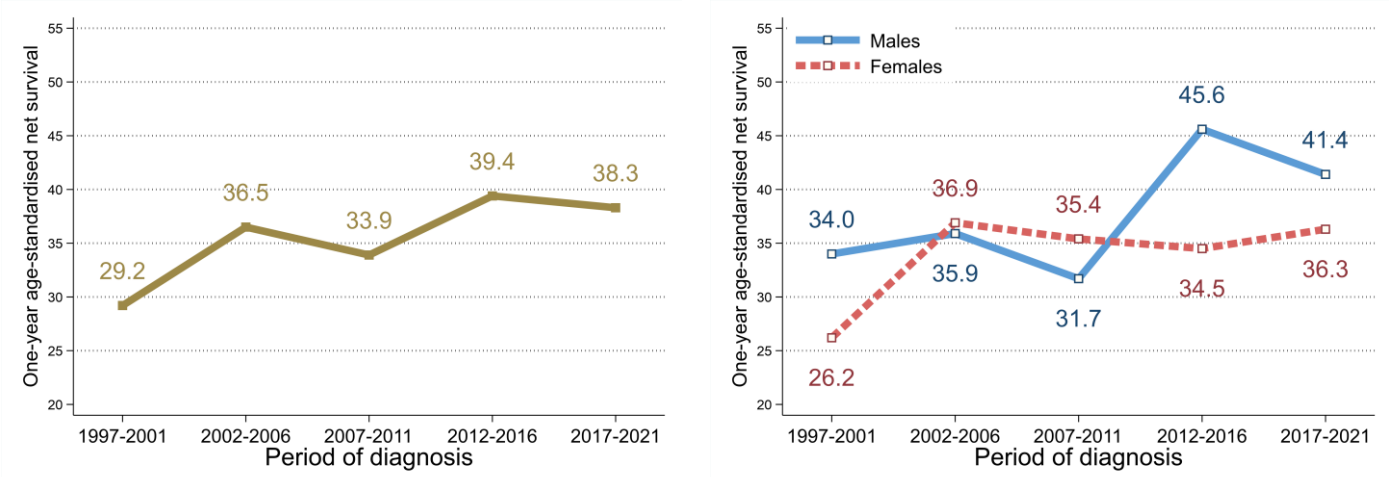


# SURVIVAL TRENDS

## ONE-YEAR NET SURVIVAL

- Between 2012-2016 and 2017-2021 there was no significant change in one-year survival (ASNS) from gallbladder and other biliary cancer.
- Compared to 1997-2001 one-year survival (ASNS) from gallbladder and other biliary cancer in 2017-2021 did not change significantly.

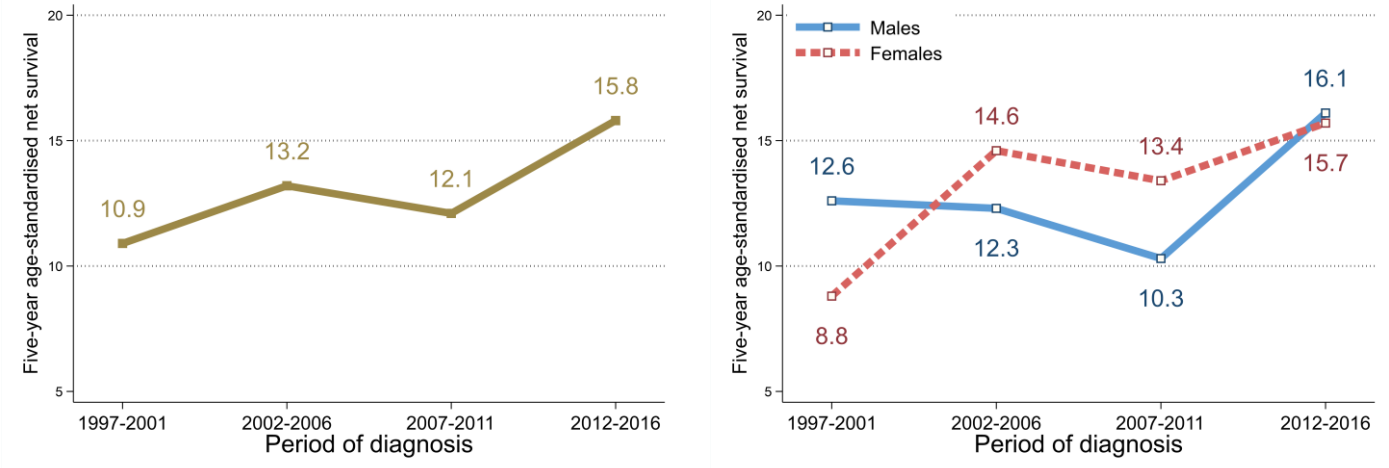
*Figure 12: Trends in one-year age-standardised net survival from gallbladder and other biliary cancer in 1997-2021*




## FIVE-YEAR NET SURVIVAL

- Between 2007-2011 and 2012-2016 there was no significant change in five-year survival (ASNS) from gallbladder and other biliary cancer.
- Compared to 1997-2001 five-year survival (ASNS) from gallbladder and other biliary cancer in 2012-2016 did not change significantly.

*Figure 13: Trends in five-year age-standardised net survival from gallbladder and other biliary cancer in 1997-2016*



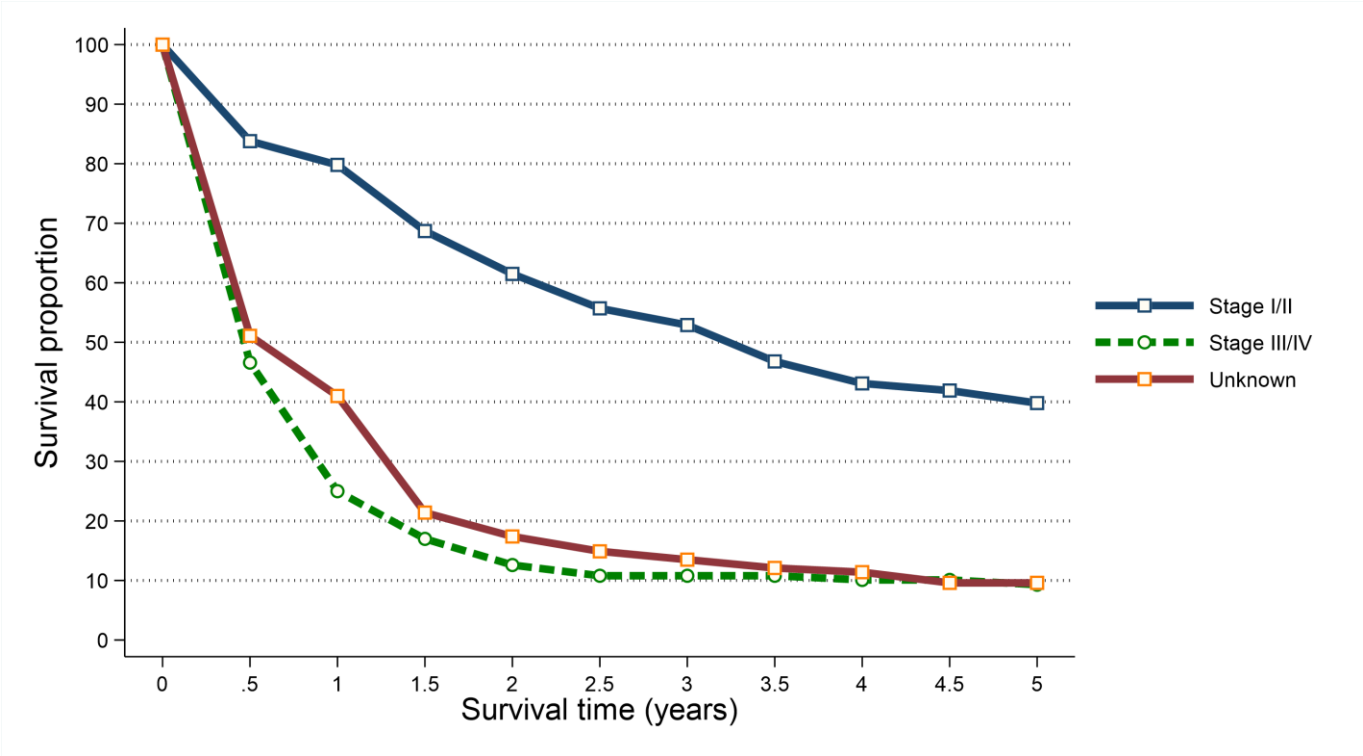
## SURVIVAL BY STAGE

- Survival from gallbladder and other biliary 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 39.8% among patients diagnosed at Stage I/II to 9.3% among those diagnosed at Stage III/IV.

*Table 6: Age-standardised net survival from gallbladder and other biliary cancer for patients diagnosed in 2012-2016 by stage at diagnosis*

| Stage at diagnosis | All persons | |
|---|---|---|
| | One-year | Five-years |
| Stage I/II | 79.8% | 39.8% |
| Stage III/IV | 25.0% | 9.3% |
| Unknown | 41.0% | 9.6% |

*Figure 14: Age-standardised net survival from gallbladder and other biliary cancer for patients diagnosed in 2012-2016 by stage at diagnosis*



# PREVALENCE

- At the end of 2021, there were 188 people (Males: 85; Females: 103) living with gallbladder and other biliary cancer who had been diagnosed with the disease during 1997-2021.
- Of these 25.0% had been diagnosed in the previous year (one-year prevalence) and 84.0% in the previous 10 years (ten-year prevalence).
- 42.6% of gallbladder and other biliary cancer survivors were aged 75 and over at the end of 2021.

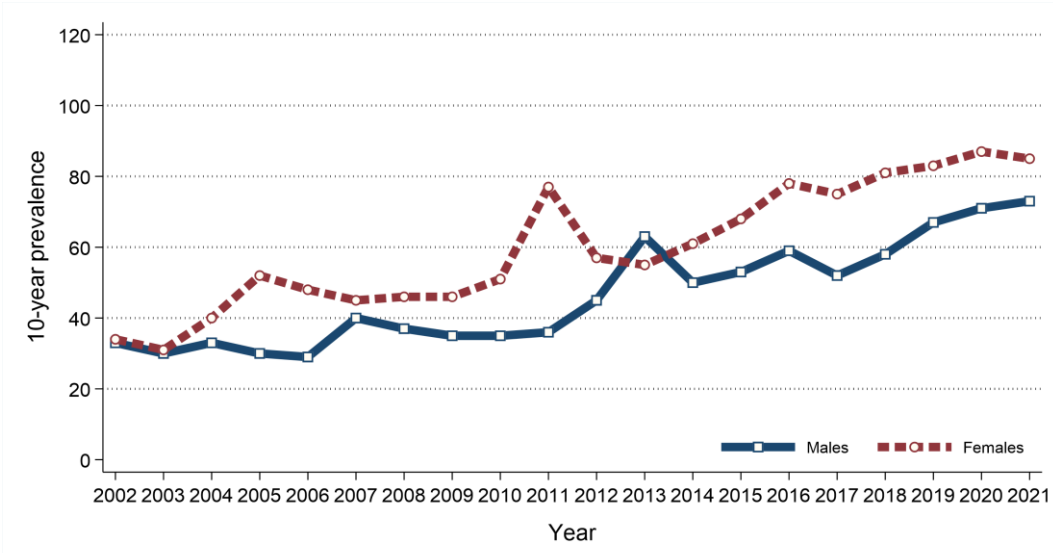
*Table 7: 25-year prevalence of gallbladder and other biliary cancer by age at end of 2021*

| 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 | 188 | 47 | 74 | 37 | 30 |
| | 0 to 74 | 108 | 26 | 45 | 24 | 13 |
| | 75 and over | 80 | 21 | 29 | 13 | 17 |
| Male | All ages | 85 | 18 | 38 | 17 | 12 |
| | 0 to 74 | 52 | 10 | 23 | 14 | 5 |
| | 75 and over | 33 | 8 | 15 | 3 | 7 |
| Female | All ages | 103 | 29 | 36 | 20 | 18 |
| | 0 to 74 | 56 | 16 | 22 | 10 | 8 |
| | 75 and over | 47 | 13 | 14 | 10 | 10 |

# PREVALENCE TRENDS

- 10-year prevalence of gallbladder and other biliary cancer among males increased between 2016 and 2021 by 23.7% from 59 survivors to 73 survivors.
- 10-year prevalence of gallbladder and other biliary cancer among females increased between 2016 and 2021 by 9.0% from 78 survivors to 85 survivors.

*Figure 15: Trends in 10-year prevalence of gallbladder and other biliary cancer in 2002-2021*




| Year | 10-year prevalence | |
|---|---|---|
| | Males | Females |
| 2012 | 45 | 57 |
| 2013 | 63 | 55 |
| 2014 | 50 | 61 |
| 2015 | 53 | 68 |
| 2016 | 59 | 78 |
| 2017 | 52 | 75 |
| 2018 | 58 | 81 |
| 2019 | 67 | 83 |
| 2020 | 71 | 87 |
| 2021 | 73 | 85 |

# MORTALITY

- There were 173 deaths from gallbladder and other biliary cancer during 2017-2021 in Northern Ireland. On average this was 35 deaths per year.
- During this period 71.1% of gallbladder and other biliary cancer deaths were among women (Male deaths: 50, Female deaths: 123). On average there were 10 male and 25 female deaths from gallbladder and other biliary cancer per year.
- Gallbladder and other biliary cancer deaths made up 0.4% of all male cancer deaths and 1.1% of all female cancer deaths.
- The median age of patients who died from gallbladder and other biliary cancer during 2017-2021 was 79 years (Males: 77, Females: 79).
- The risk of dying from gallbladder and other biliary cancer varied by age, with 63.0% of those who died from gallbladder and other biliary cancer aged 75 and over at death.
- In contrast, 3.5% of patients who died from gallbladder and other biliary cancer were aged 0 to 54 at death.

*Figure 16: Average number of deaths from gallbladder and other biliary cancer per year in 2017-2021 by age at death*

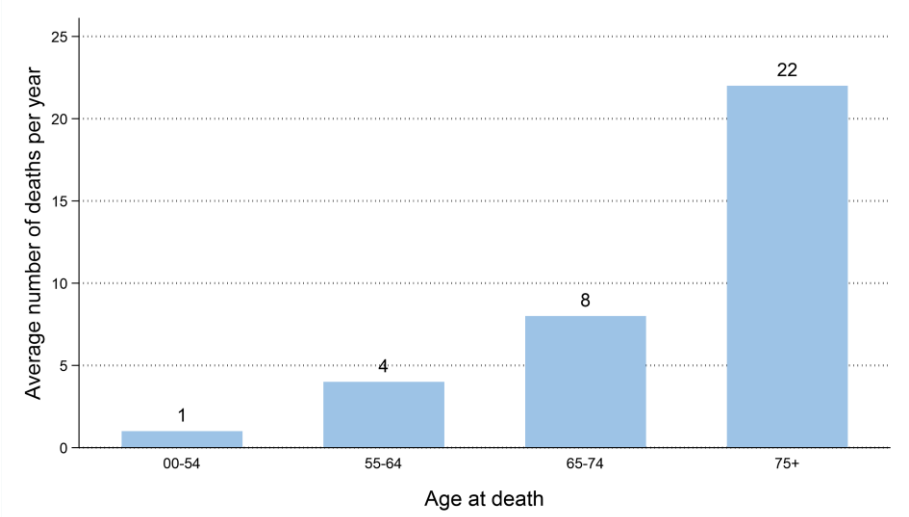
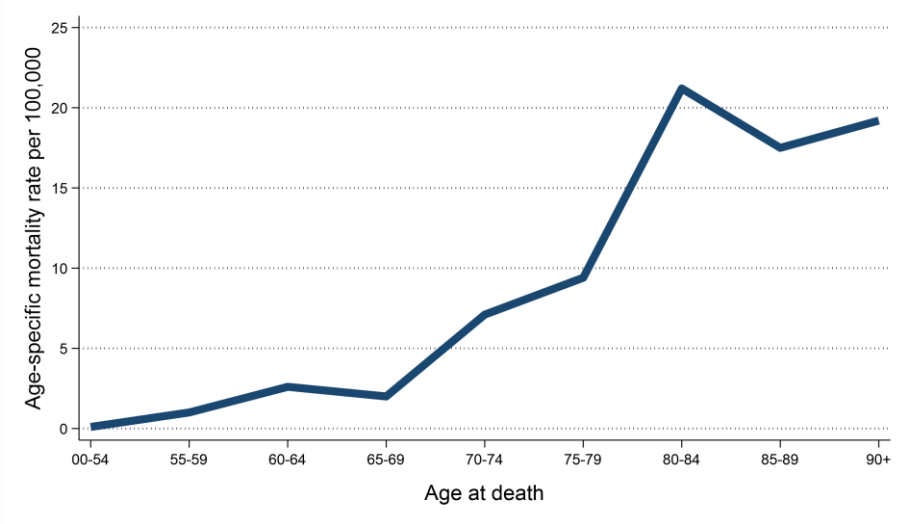


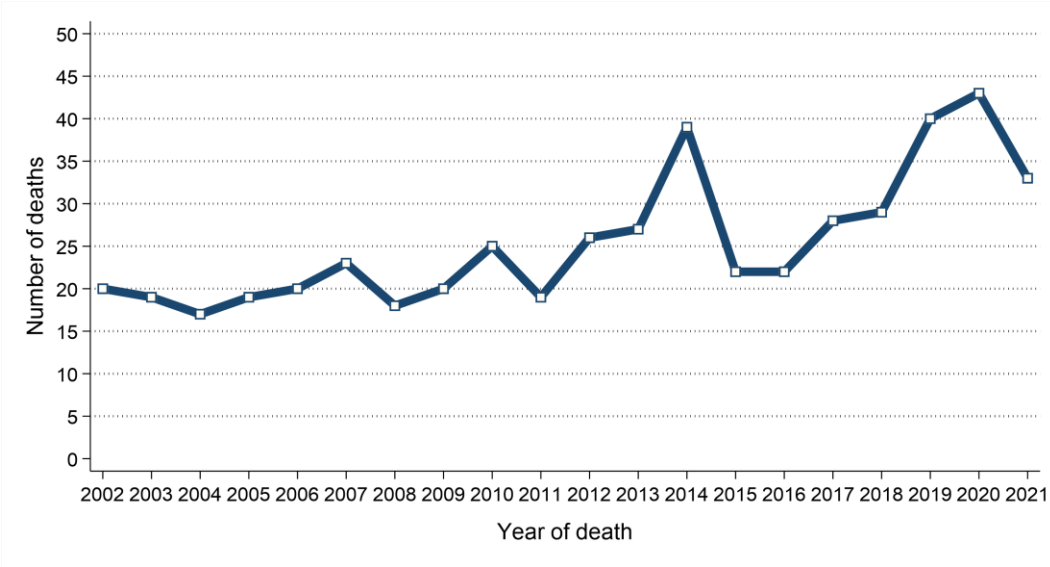

*Figure 17: Age-specific mortality rates of gallbladder and other biliary cancer in 2017-2021*



# MORTALITY TRENDS

- The number of deaths from gallbladder and other biliary cancer increased between 2012-2016 and 2017-2021 by 27.2% from 136 deaths (27 deaths per year) to 173 deaths (35 deaths per year).

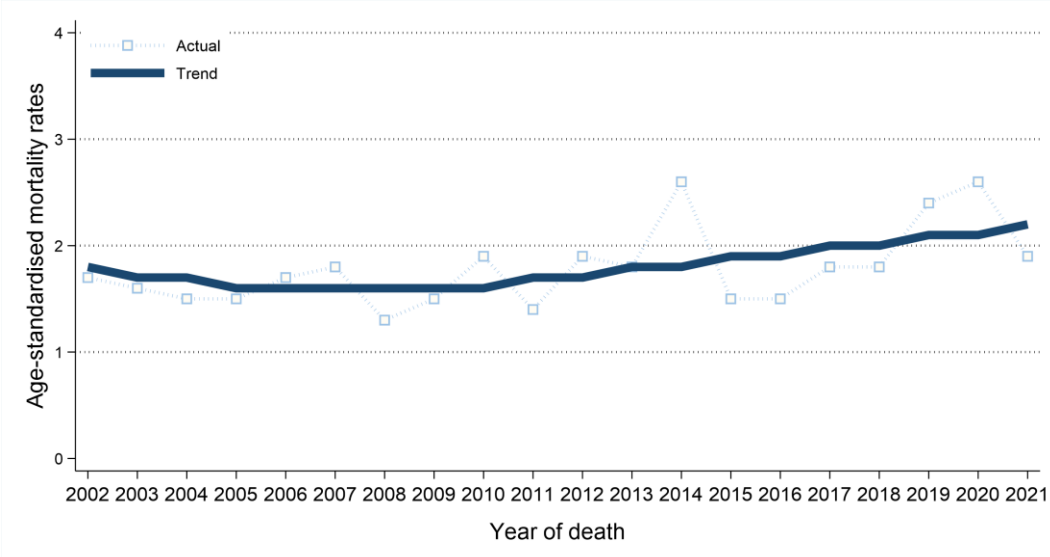
*Figure 18: Trends in the number of deaths from gallbladder and other biliary cancer from 2002 to 2021*




| Year of death | Number of deaths All persons |
|---|---|
| 2012 | 26 |
| 2013 | 27 |
| 2014 | 39 |
| 2015 | 22 |
| 2016 | 22 |
| 2017 | 28 |
| 2018 | 29 |
| 2019 | 40 |
| 2020 | 43 |
| 2021 | 33 |

- Age-standardised gallbladder and other biliary cancer mortality rates increased between 2012-2016 and 2017-2021 by 10.5% from 1.9 to 2.1 deaths per 100,000 persons. This change was not statistically significant.

*Figure 19: Trends in mortality rates of gallbladder and other biliary 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. gallbladder 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. gallbladder 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.