Malignant melanoma

1993-2021

(ICD10 codes: C43)

Northern Ireland Cancer Registry, 2023

An official statistics publication

ABOUT THIS REPORT

Contents

This report includes information on incidence of malignant melanoma 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 2023. Malignant melanoma: 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.
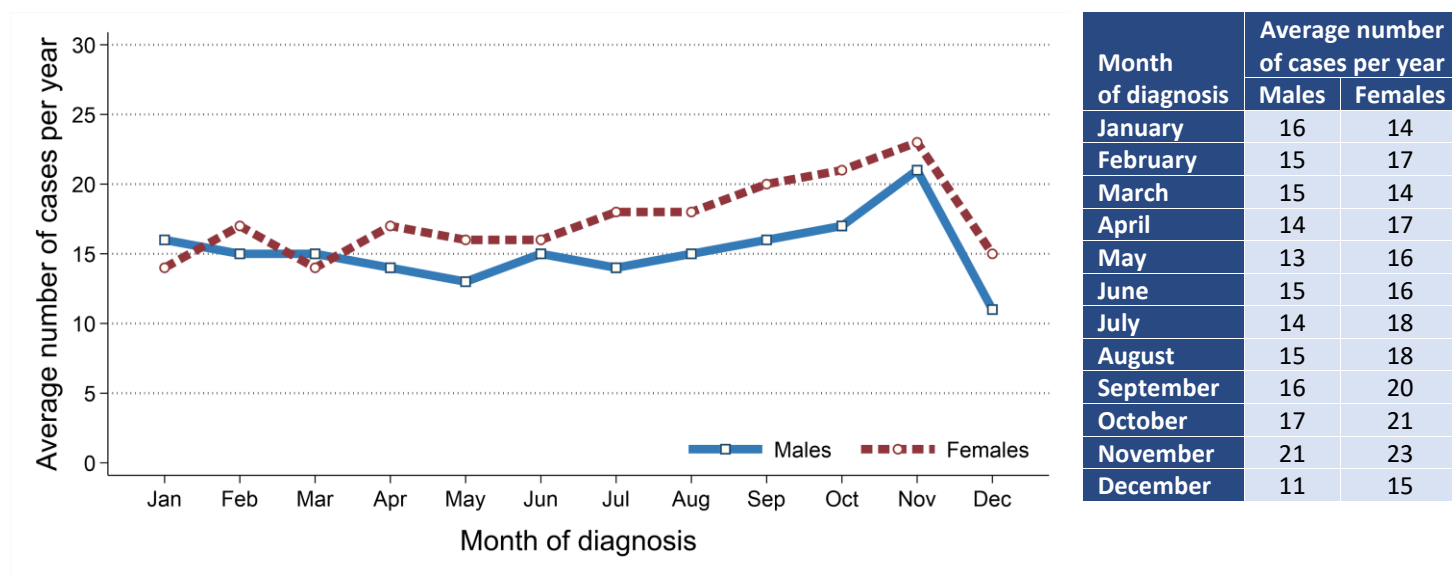
NICR is funded by the Public Health Agency and is based in Queen's University, Belfast.
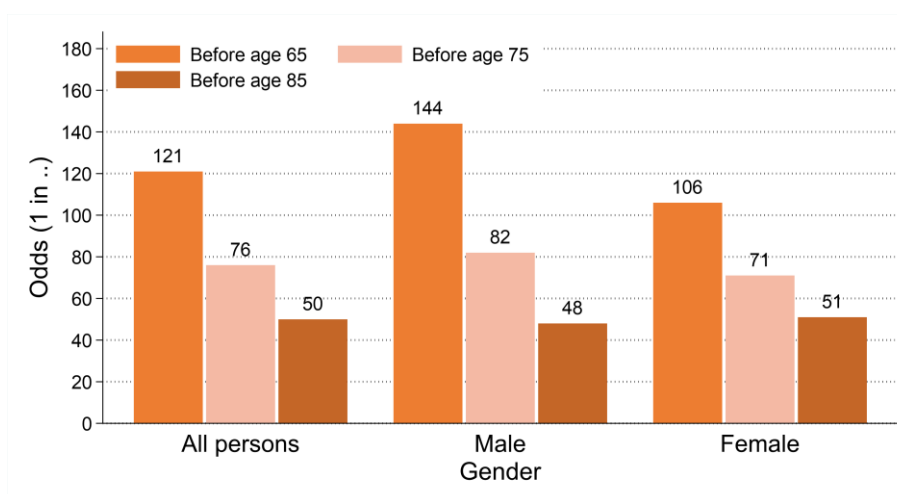
INCIDENCE

- There were 1,954 cases of malignant melanoma diagnosed during 2017-2021 in Northern Ireland. On average this was 391 cases per year.

- During this period 53.5% of malignant melanoma cases were among women (Male cases: 908, Female cases: 1,046). On average there were 182 male and 209 female cases of malignant melanoma per year.

- The most common diagnosis month during 2017-2021 was November among males with 21 cases per year and November among females with 23 cases per year.

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

Month of diagnosis	Average number of cases per year	
	Males	Females
January	16	14
February	15	17
March	15	14
April	14	17
May	13	16
June	15	16
July	14	18
August	15	18
September	16	20
October	17	21
November	21	23
December	11	15

- The malignant melanoma incidence rates for each gender were 19.5 cases per 100,000 males and 21.8 cases per 100,000 females.

- The odds of developing malignant melanoma before age 85 was 1 in 48 for men and 1 in 51 for women.

Figure 2: Odds of developing malignant melanoma in 2017-2021

INCIDENCE BY AGE

- The median age of patients diagnosed with malignant melanoma during 2017-2021 was 64 years (Males: 67, Females: 60).
- The risk of developing malignant melanoma varied by age, with 30.0% of men and 23.7% of women diagnosed with malignant melanoma aged 75 and over at diagnosis.
- In contrast, 35.1% of patients diagnosed with malignant melanoma were aged 0 to 54 at diagnosis.

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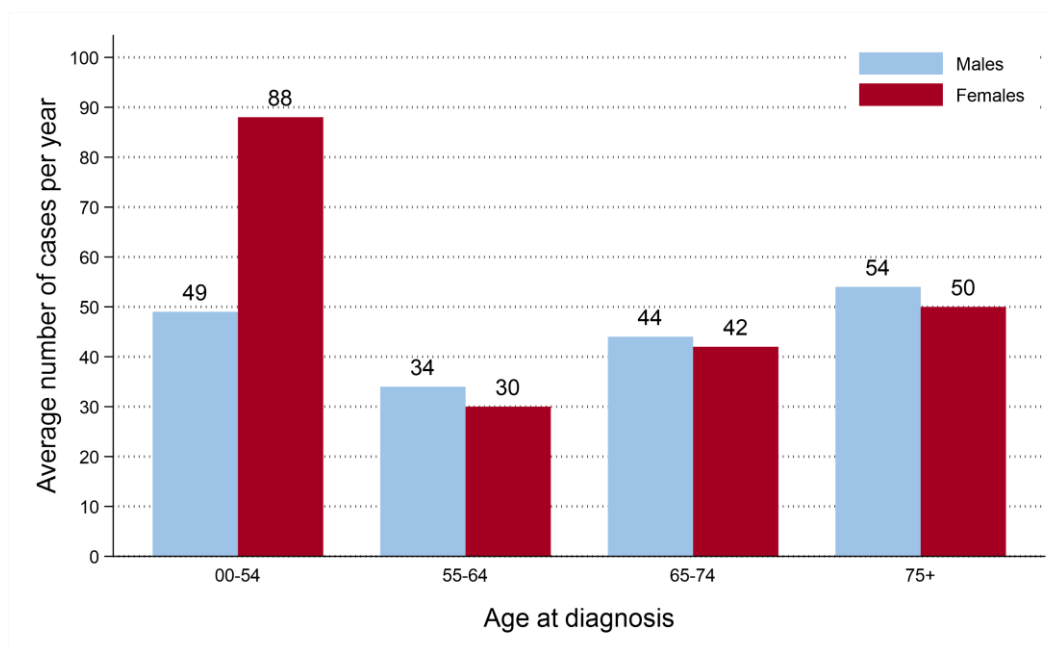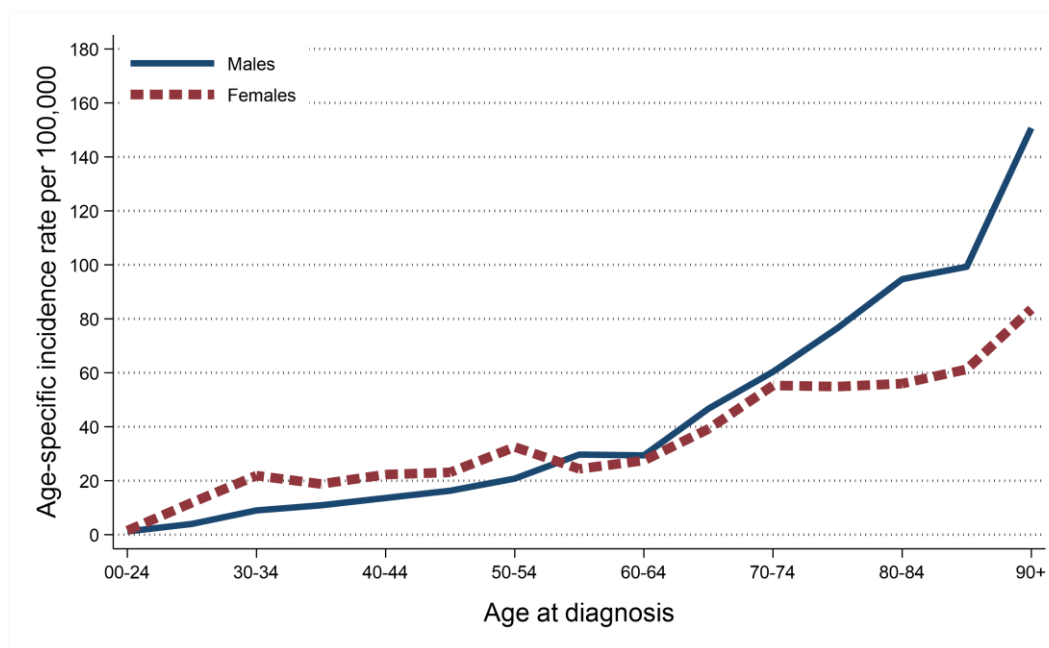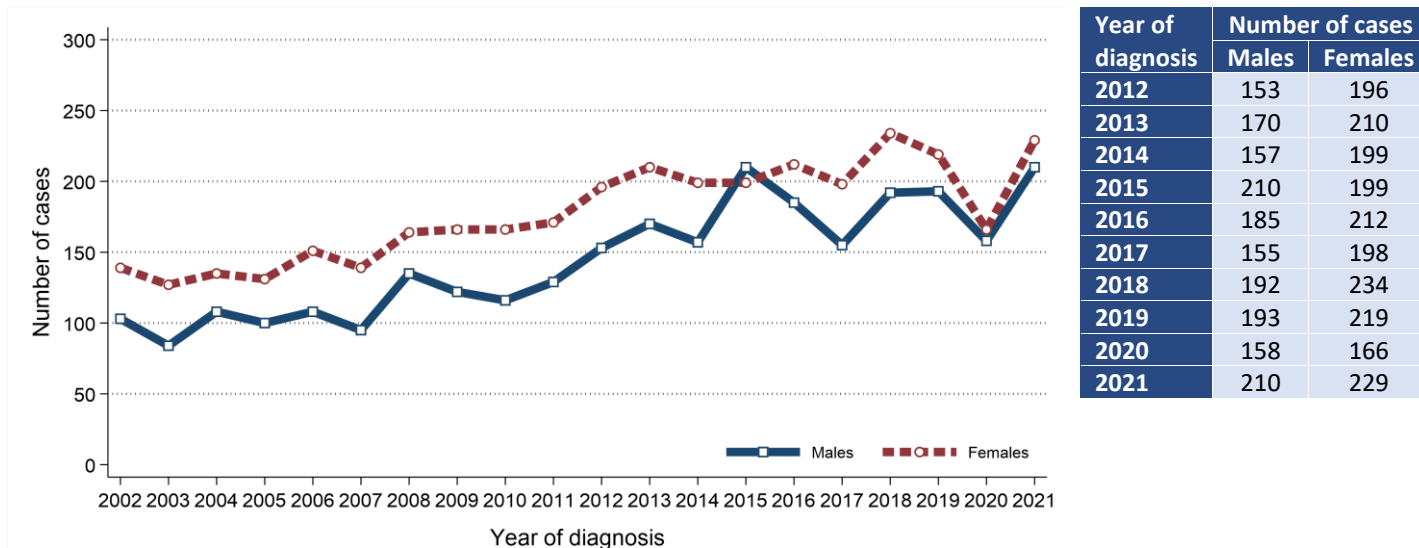

Figure 4: Age-specific incidence rates of malignant melanoma in 2017-2021

INCIDENCE TRENDS

- The number of cases of malignant melanoma among males increased between 2012-2016 and 2017-2021 by 3.8% from 875 cases (175 cases per year) to 908 cases (182 cases per year).
- The number of cases of malignant melanoma among females increased between 2012-2016 and 2017-2021 by 3.0% from 1,016 cases (203 cases per year) to 1,046 cases (209 cases per year).

Figure 5: Trends in number of cases of malignant melanoma diagnosed from 2002 to 2021

Year of diagnosis	Number of cases	
	Males	Females
2012	153	196
2013	170	210
2014	157	199
2015	210	199
2016	185	212
2017	155	198
2018	192	234
2019	193	219
2020	158	166
2021	210	229

- Male age-standardised malignant melanoma incidence rates decreased between 2012-2016 and 2017-2021 by 5.7% from 24.6 to 23.2 cases per 100,000 males. This change was not statistically significant.
- Female age-standardised malignant melanoma incidence rates decreased between 2012-2016 and 2017-2021 by 2.1% from 23.4 to 22.9 cases per 100,000 females. This change was not statistically significant.

Figure 6: Trends in incidence rates of malignant melanoma from 2002 to 2021
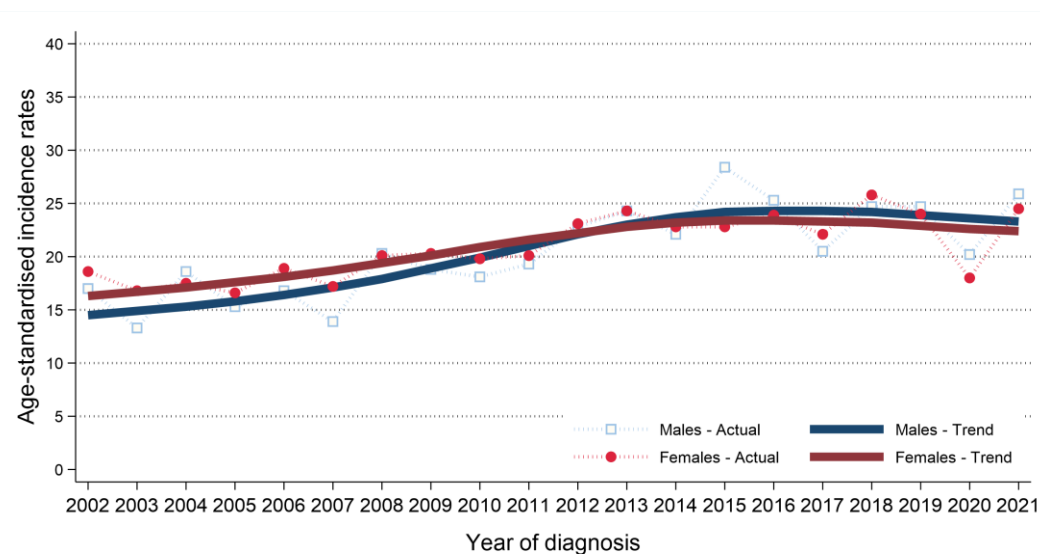
Age-standardised incidence rates illustrate the change in the number of cases within a population of a fixed size and age structure (2013 European Standard).

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).
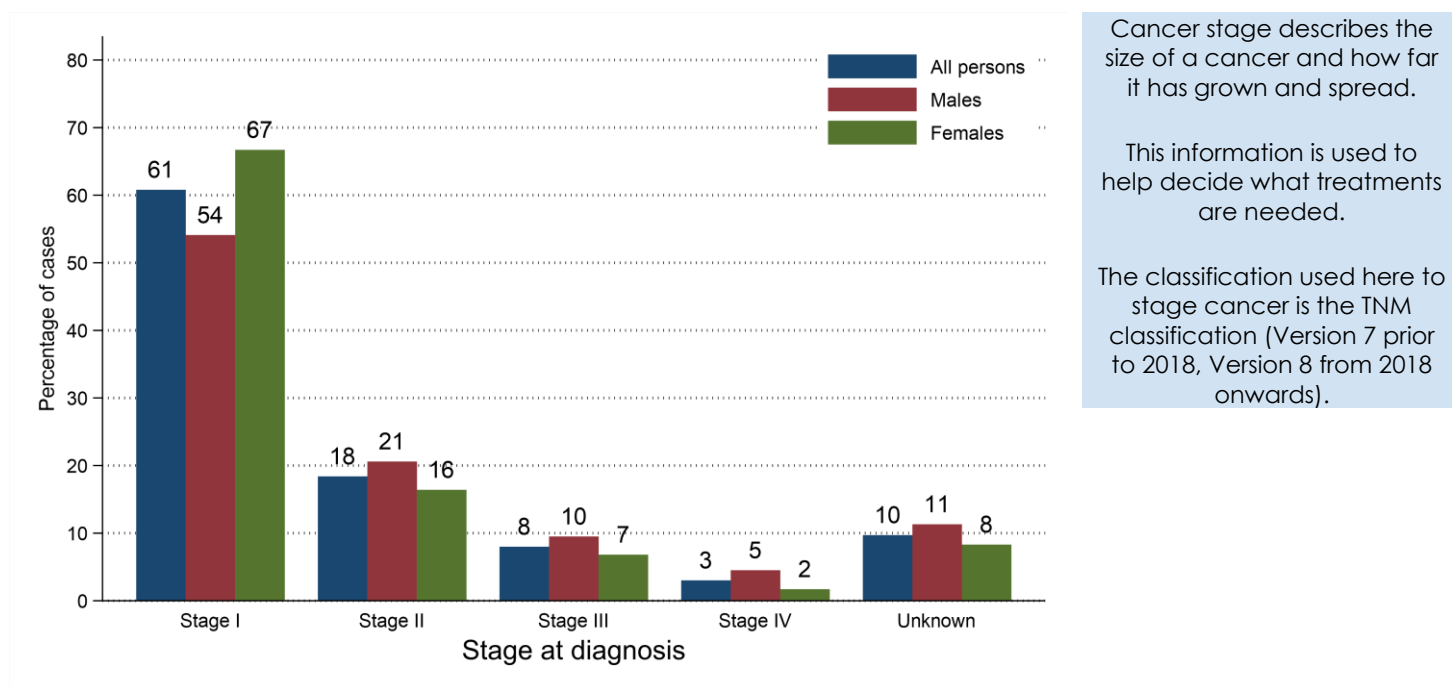
INCIDENCE BY STAGE AT DIAGNOSIS

- During 2017-2021 90.3% of malignant melanoma cases had a stage assigned.

- 60.8% of malignant melanoma cases were diagnosed at Stage I. (67.4% of staged cases)

- 3.0% of malignant melanoma cases were diagnosed at Stage IV. (3.3% of staged cases)

Table 1: Number of cases of malignant melanoma 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	**1,954**	**391**	**908**	**182**	**1,046**	**209**
	.	.	.	.	.	.
Stage I	1,189	238	491	98	698	140
Stage II	359	72	187	37	172	34
Stage III	157	31	86	17	71	14
Stage IV	59	12	41	8	18	4
Unknown	190	38	103	21	87	17

Figure 7: Proportion of cases of malignant melanoma 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).
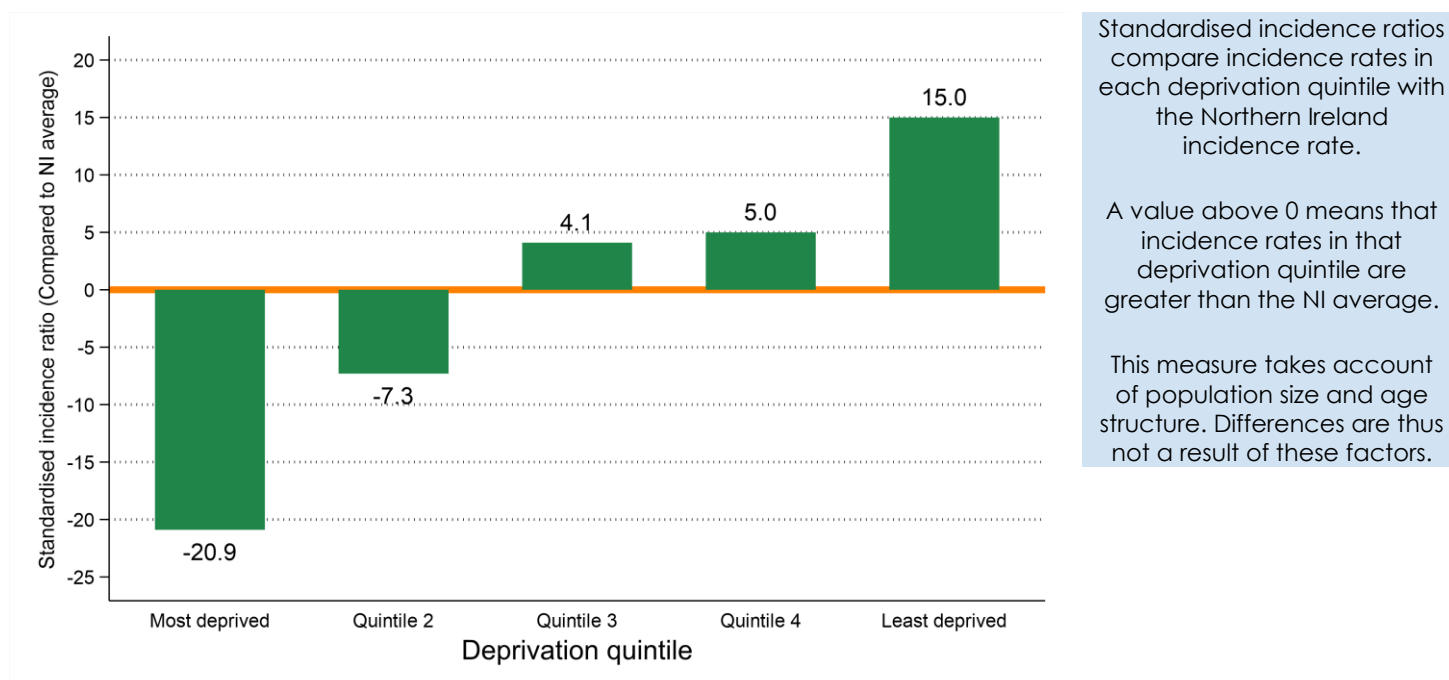
INCIDENCE BY DEPRIVATION

- The number of cases of malignant melanoma 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 20.9% lower than the NI average.
  - in the least socio-economically deprived areas were 15.0% higher than the NI average.

Table 2: Number of cases of malignant melanoma 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	**1,954**	**391**	**908**	**182**	**1,046**	**209**
	.	.	.	.	.	.
Most deprived	263	53	107	21	156	31
Quintile 2	364	73	172	34	192	38
Quintile 3	428	86	204	41	224	45
Quintile 4	435	87	208	42	227	45
Least deprived	464	93	217	43	247	49
Unknown	0	0	0	0	0	0

Figure 8: Standardised incidence ratio comparing deprivation quintile to Northern Ireland for malignant melanoma 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 malignant melanoma 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 were 12.1% higher than the NI average.
  - in Southern HSCT did not vary significantly from the NI average.
  - in Western HSCT were 12.2% lower than the NI average.

Table 3: Number of cases of malignant melanoma 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	**1,954**	**391**	**908**	**182**	**1,046**	**209**
	.	.	.	.	.	.
Belfast HSCT	351	70	159	32	192	38
Northern HSCT	493	99	220	44	273	55
South Eastern HSCT	448	90	217	43	231	46
Southern HSCT	393	79	187	37	206	41
Western HSCT	269	54	125	25	144	29
Unknown	0	0	0	0	0	0

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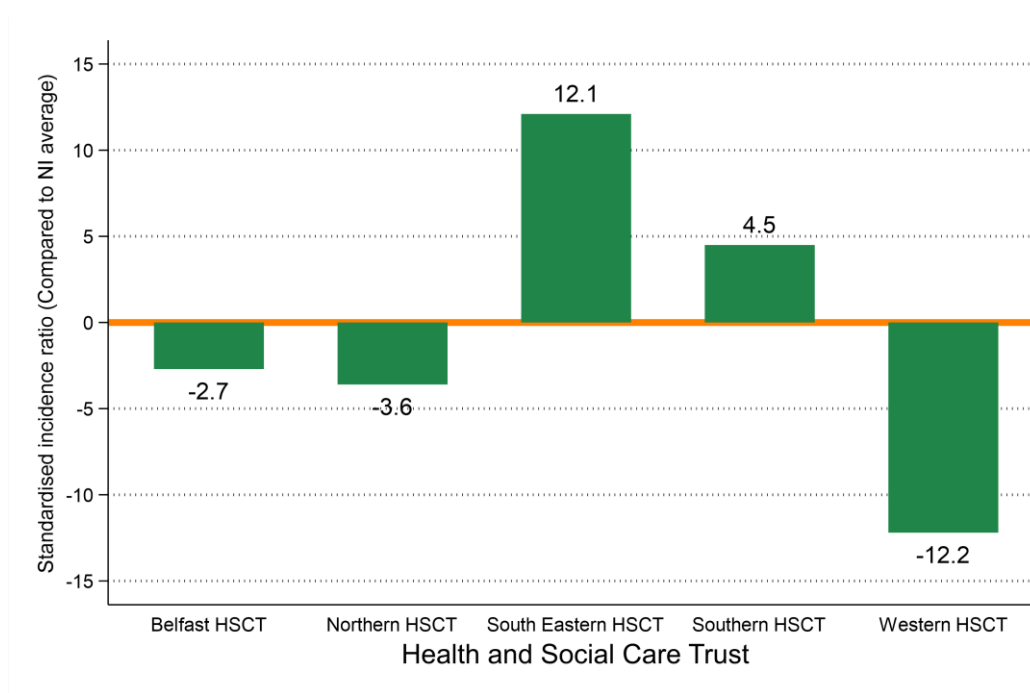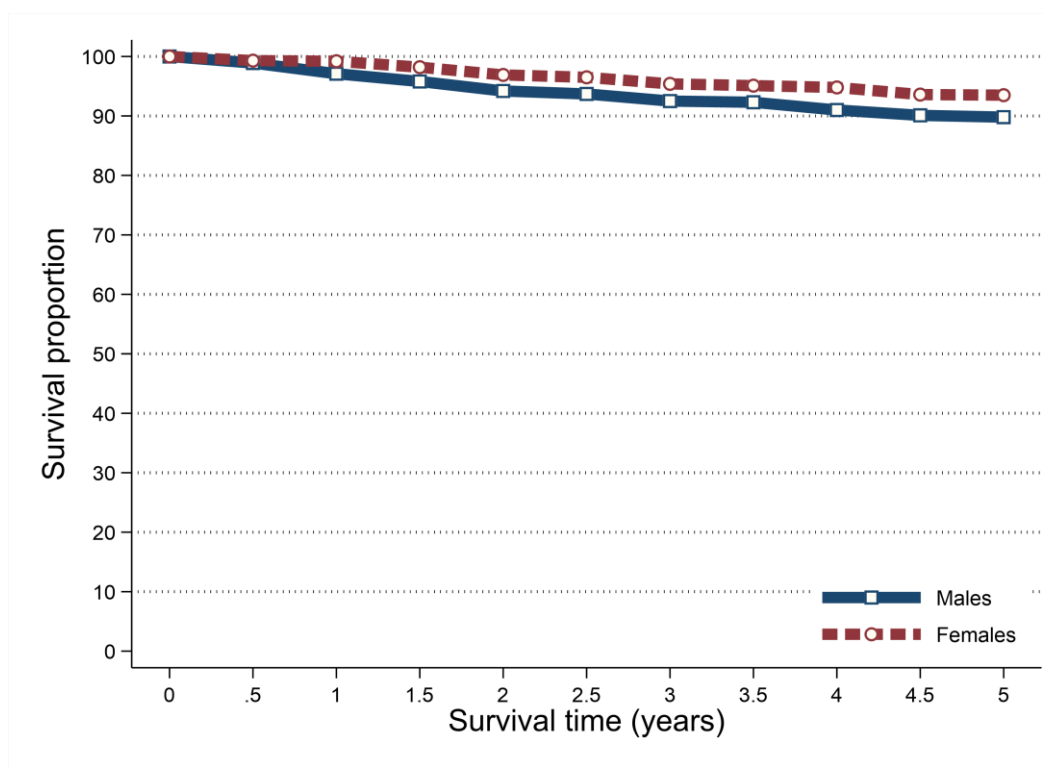
SURVIVAL

- 95.8% of patients were alive one year and 81.2% were alive five years from a malignant melanoma diagnosis in 2012-2016. (observed survival)

- Age-standardised net survival (ASNS), which removes the effect of deaths from causes unrelated to cancer, was 98.2% one year and 91.9% five years from a malignant melanoma diagnosis in 2012-2016.

- Five-year survival (ASNS) for malignant melanoma patients diagnosed in 2012-2016 was 89.8% among men and 93.5% among women.

Table 4: Survival from malignant melanoma 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	97.9%	99.2%	97.3%	98.9%	98.4%	99.3%
One year	95.8%	98.2%	94.0%	97.1%	97.4%	99.2%
Two years	91.0%	95.8%	88.4%	94.2%	93.2%	96.9%
Five years	81.2%	91.9%	76.3%	89.8%	85.4%	93.5%

Figure 10: Age-standardised net survival from malignant melanoma 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.
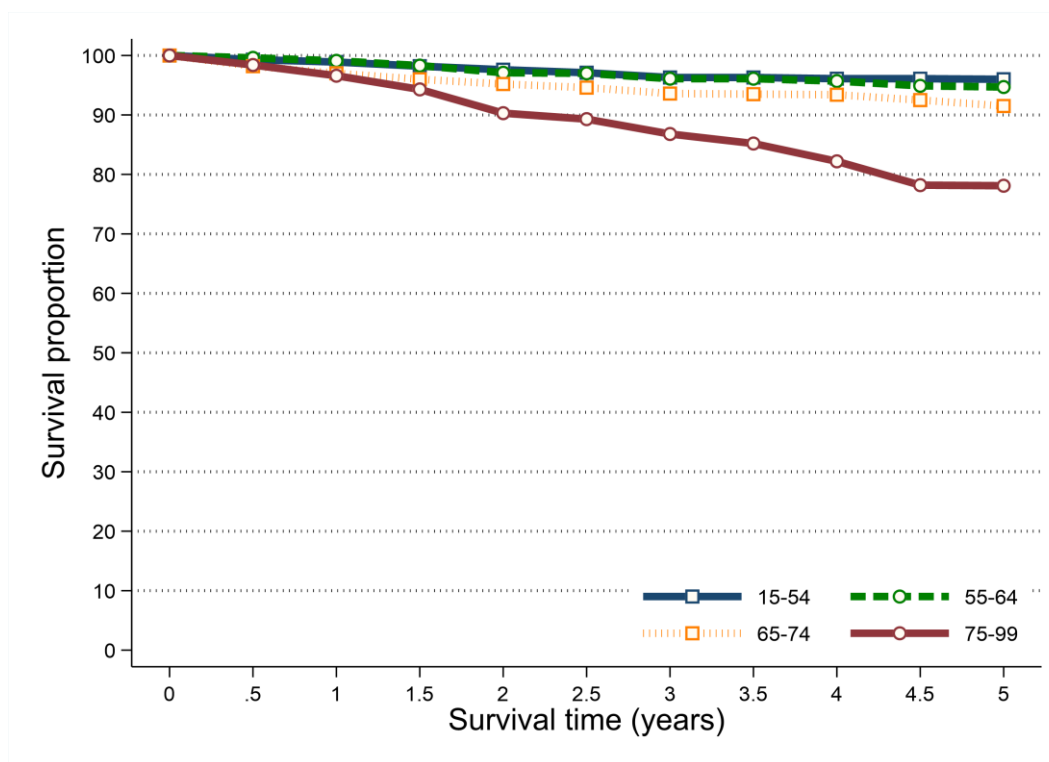
SURVIVAL BY AGE

- Survival from malignant melanoma 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 96.0% among patients aged 15 to 54 at diagnosis to 78.1% among those aged 75 to 99.

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

Age group	All persons	
	One-year	Five-years
15 to 54	98.9%	96.0%
55 to 64	99.1%	94.7%
65 to 74	97.0%	91.5%
75 to 99	96.6%	78.1%

Figure 11: Net survival from malignant melanoma for patients diagnosed in 2012-2016 by age at diagnosis
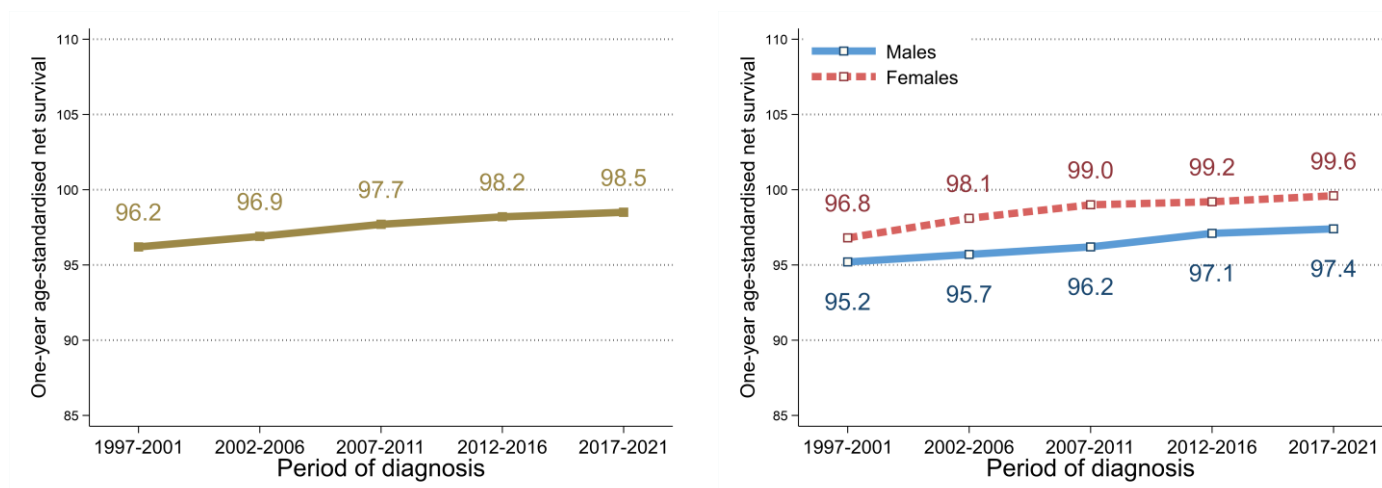
SURVIVAL TRENDS

ONE-YEAR NET SURVIVAL

- Between 2012-2016 and 2017-2021 there was no significant change in one-year survival (ASNS) from malignant melanoma.

- Compared to 1997-2001 one-year survival (ASNS) from malignant melanoma in 2017-2021 did not change significantly. However, there was a significant increase between the two time periods for females (96.8% to 99.6%) but not males.

Figure 12: Trends in one-year age-standardised net survival from malignant melanoma in 1997-2021

FIVE-YEAR NET SURVIVAL

- Between 2007-2011 and 2012-2016 there was no significant change in five-year survival (ASNS) from malignant melanoma.

- Compared to 1997-2001 five-year survival (ASNS) from malignant melanoma in 2012-2016 did not change significantly.

*Figure 13: Trends in five-year age-standardised net survival from malignant melanoma in 1997-2016*
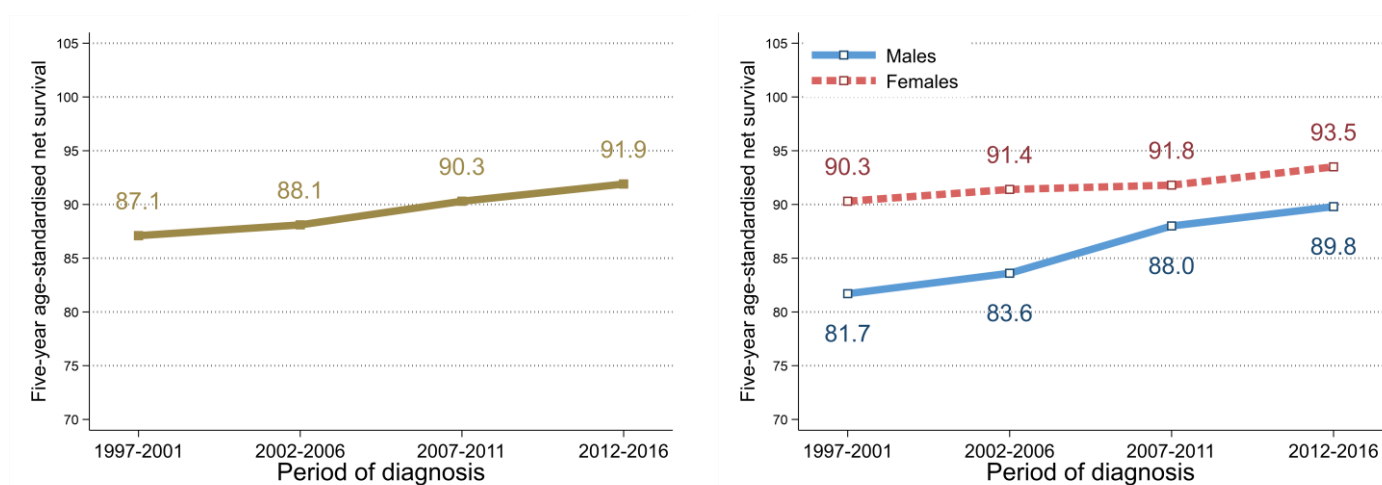
SURVIVAL BY STAGE

- Survival from malignant melanoma 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 99.1% among patients diagnosed at Stage I to 38.5% among those diagnosed at Stage III/IV.

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

Stage at diagnosis	All persons	
	One-year	Five-years
Stage I	99.9%	99.1%
Stage II	98.8%	82.7%
Stage III/IV	73.1%	38.5%
Unknown	91.8%	78.6%

Figure 14: Age-standardised net survival from malignant melanoma for patients diagnosed in 2012-2016 by stage at diagnosis
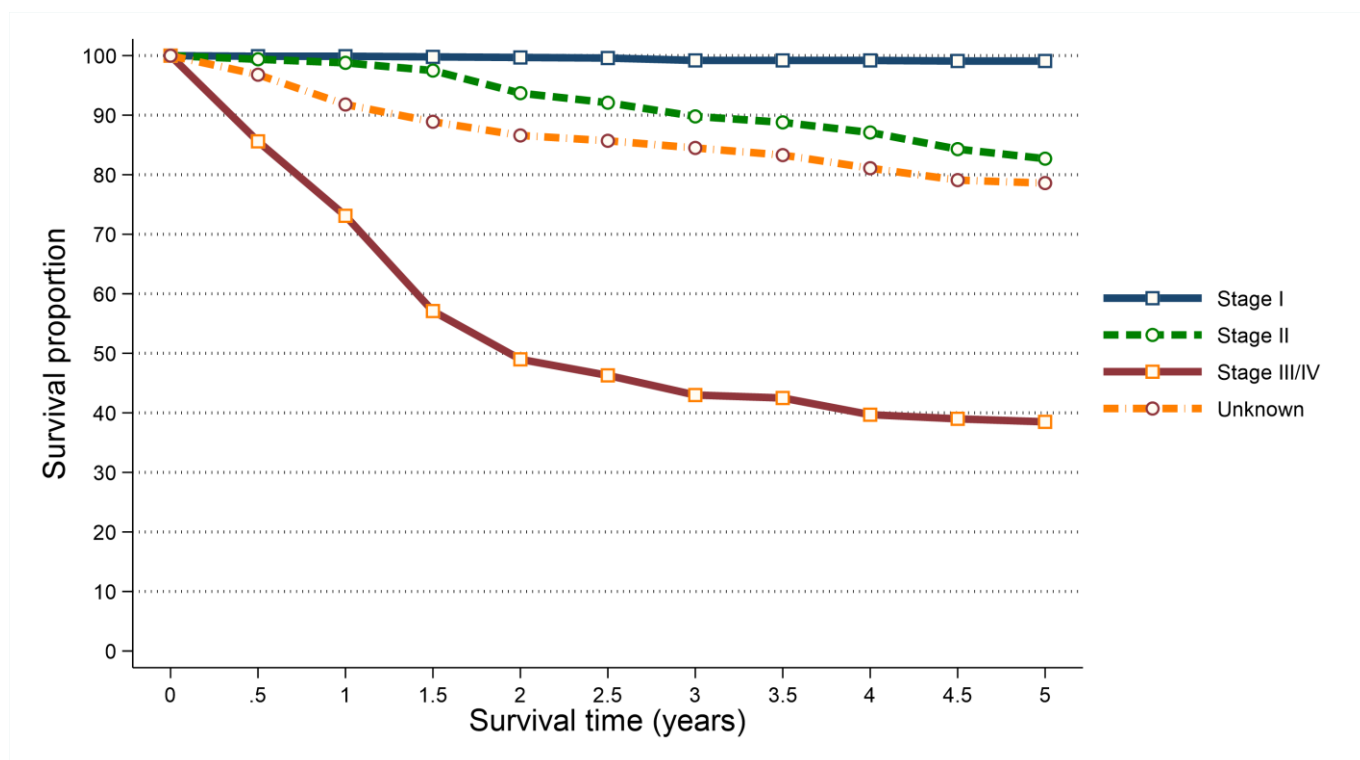
PREVALENCE

- At the end of 2021, there were 4,994 people (Males: 2,025; Females: 2,969) living with malignant melanoma who had been diagnosed with the disease during 1997-2021.
- Of these 8.4% had been diagnosed in the previous year (one-year prevalence) and 62.0% in the previous 10 years (ten-year prevalence).
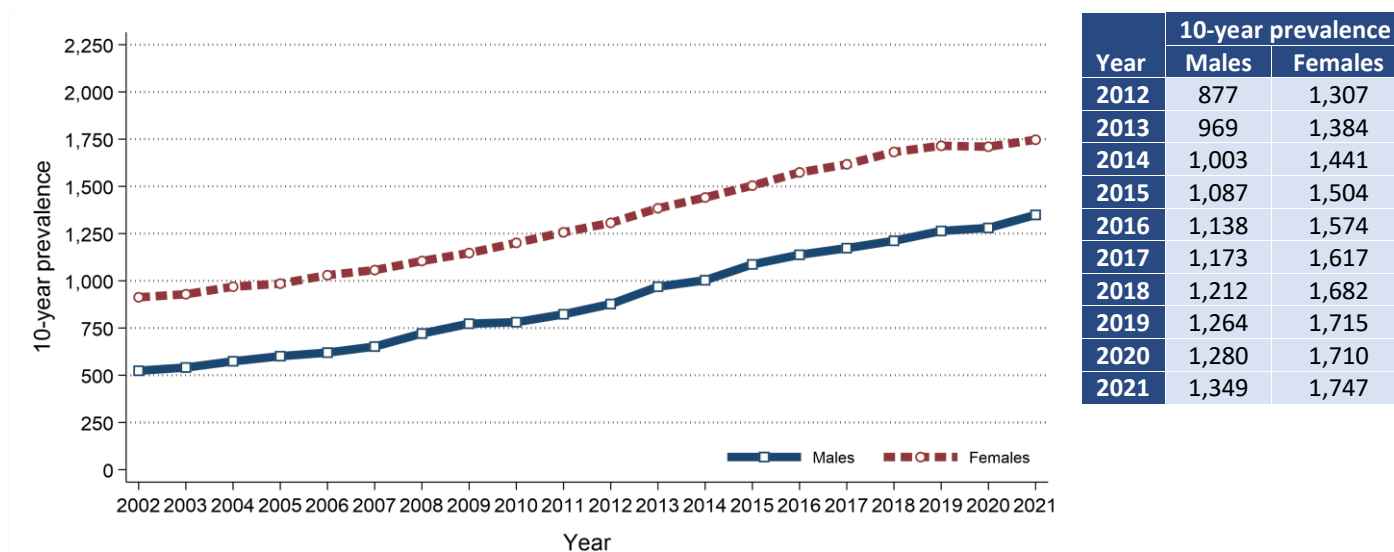- 28.4% of malignant melanoma survivors were aged 75 and over at the end of 2021.

Table 7: 25-year prevalence of malignant melanoma 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	4,994	418	1,303	1,375	1,898
	0 to 74	3,574	306	942	974	1,352
	75 and over	1,420	112	361	401	546
Male	All ages	2,025	199	574	576	676
	0 to 74	1,382	142	396	382	462
	75 and over	643	57	178	194	214
Female	All ages	2,969	219	729	799	1,222
	0 to 74	2,192	164	546	592	890
	75 and over	777	55	183	207	332

PREVALENCE TRENDS

- 10-year prevalence of malignant melanoma among males increased between 2016 and 2021 by 18.5% from 1,138 survivors to 1,349 survivors.
- 10-year prevalence of malignant melanoma among females increased between 2016 and 2021 by 11.0% from 1,574 survivors to 1,747 survivors.

Figure 15: Trends in 10-year prevalence of malignant melanoma in 2002-2021

Year	10-year prevalence	
	Males	Females
2012	877	1,307
2013	969	1,384
2014	1,003	1,441
2015	1,087	1,504
2016	1,138	1,574
2017	1,173	1,617
2018	1,212	1,682
2019	1,264	1,715
2020	1,280	1,710
2021	1,349	1,747

MORTALITY

- There were 300 deaths from malignant melanoma during 2017-2021 in Northern Ireland. On average this was 60 deaths per year.
- During this period 45.0% of malignant melanoma deaths were among women (Male deaths: 165, Female deaths: 135). On average there were 33 male and 27 female deaths from malignant melanoma per year.
- Malignant melanoma deaths made up 1.4% of all male cancer deaths and 1.3% of all female cancer deaths.
- The median age of patients who died from malignant melanoma during 2017-2021 was 75 years (Males: 75, Females: 75).
- The risk of dying from malignant melanoma varied by age, with 50.3% of men and 51.9% of women who died from malignant melanoma aged 75 and over at death.
- In contrast, 14.0% of patients who died from malignant melanoma were aged 0 to 54 at death.

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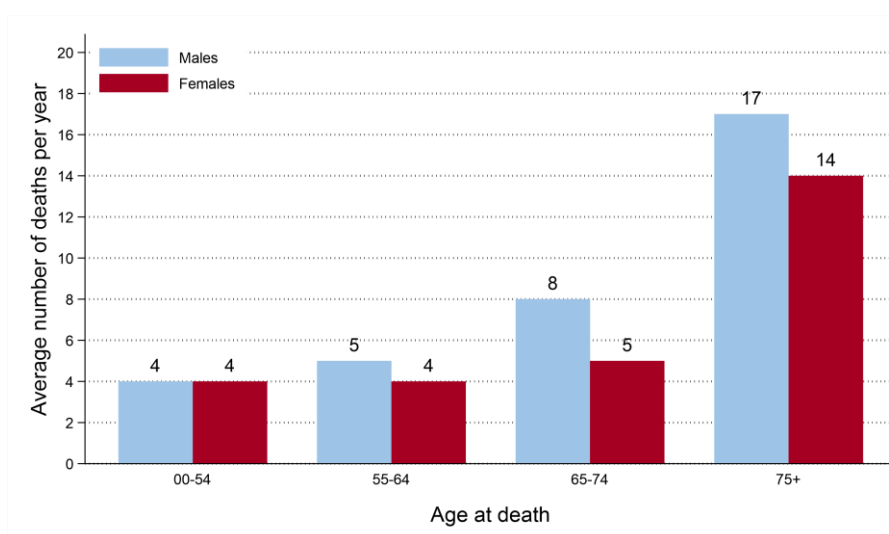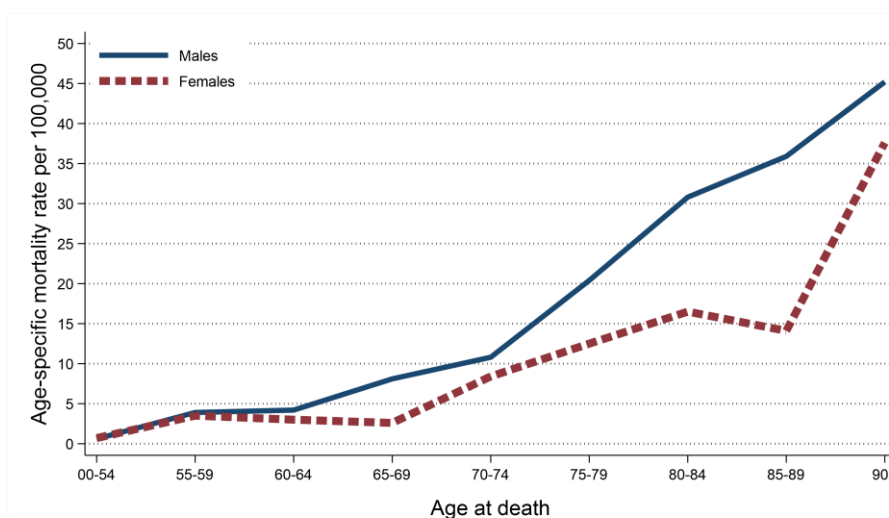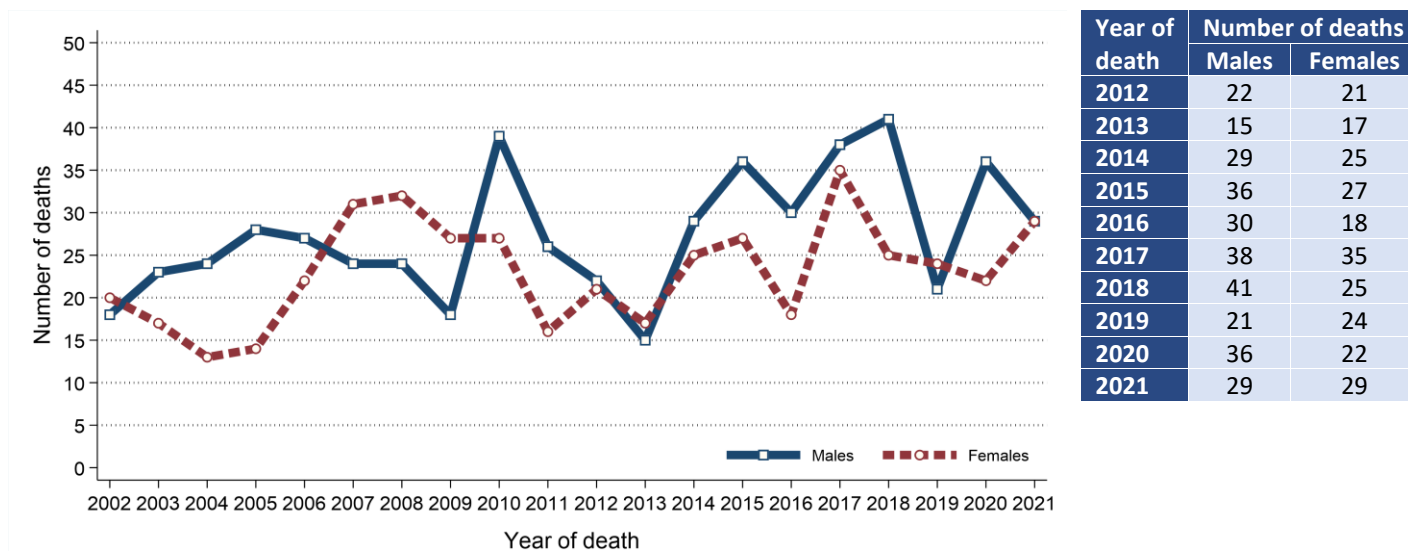

Figure 17: Age-specific mortality rates of malignant melanoma in 2017-2021

- The number of deaths from malignant melanoma among males increased between 2012-2016 and 2017-2021 by 25.0% from 132 deaths (26 deaths per year) to 165 deaths (33 deaths per year).
- The number of deaths from malignant melanoma among females increased between 2012-2016 and 2017-2021 by 25.0% from 108 deaths (22 deaths per year) to 135 deaths (27 deaths per year).

Figure 18: Trends in the number of deaths from malignant melanoma from 2002 to 2021

Year of death	Number of deaths	
	Males	Females
2012	22	21
2013	15	17
2014	29	25
2015	36	27
2016	30	18
2017	38	35
2018	41	25
2019	21	24
2020	36	22
2021	29	29

- Male age-standardised malignant melanoma mortality rates increased between 2012-2016 and 2017-2021 by 7.1% from 4.2 to 4.5 deaths per 100,000 males. This change was not statistically significant.
- Female age-standardised malignant melanoma mortality rates increased between 2012-2016 and 2017-2021 by 16.0% from 2.5 to 2.9 deaths per 100,000 females. This change was not statistically significant.

Figure 19: Trends in mortality rates of malignant melanoma from 2002 to 2021
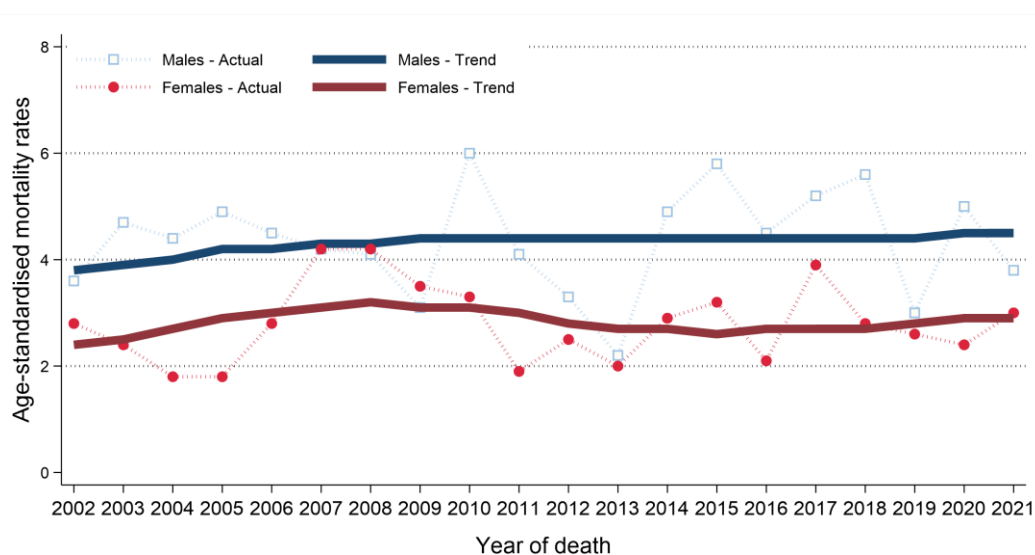
Age-standardised mortality rates illustrate the change in the number of deaths within a population of a fixed size and age structure (2013 European Standard).

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.

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. malignant melanoma 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. malignant melanoma 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.