Female breast cancer

1993-2022

(ICD10 codes: C50)

Northern Ireland Cancer Registry

Northern Ireland Cancer Registry, 2024

An official statistics publication

ABOUT THIS REPORT

Contents

This report includes information on incidence of female breast cancer as recorded by the Northern Ireland Cancer Registry (NICR). Incidence data is available annually from 1993 to 2022, however in order to provide stable and robust figures the majority of information presented in this report is based upon the average number of cases diagnosed in the last five years.

Methodology

The methodology used in producing the statistics presented in this report, including details of data sources, classifications and coding are available in the accompanying methodology report available at: www.qub.ac.uk/research-centres/nicr/CancerInformation/official-statistics.

Official statistics

The incidence, prevalence and survival statistics in this publication are designated as official statistics signifying that they comply with the Code of Practice for Official Statistics. Further information on this code is available at code.statisticsauthority.gov.uk.

Cancer mortality data

The NI Statistics and Research Agency (NISRA) is the official statistics provider of cancer mortality data in Northern Ireland. However, for completeness, data on cancer mortality is also provided in this report. While analysis is conducted by NICR staff, the original data is provided courtesy of the General Register Office (NI) via the Department of Health.

Reuse of information

The information in this report (and any supplementary material) is available for reuse free of charge and without the need to contact NICR. However, we request that NICR is acknowledged as the source of any reused information. The following reference is recommended:
Northern Ireland Cancer Registry 2024. Female breast cancer: 1993-2022. Available at: www.qub.ac.uk/research-centres/nicr

Further information

Further information is available at: www.qub.ac.uk/research-centres/nicr

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Acknowledgements

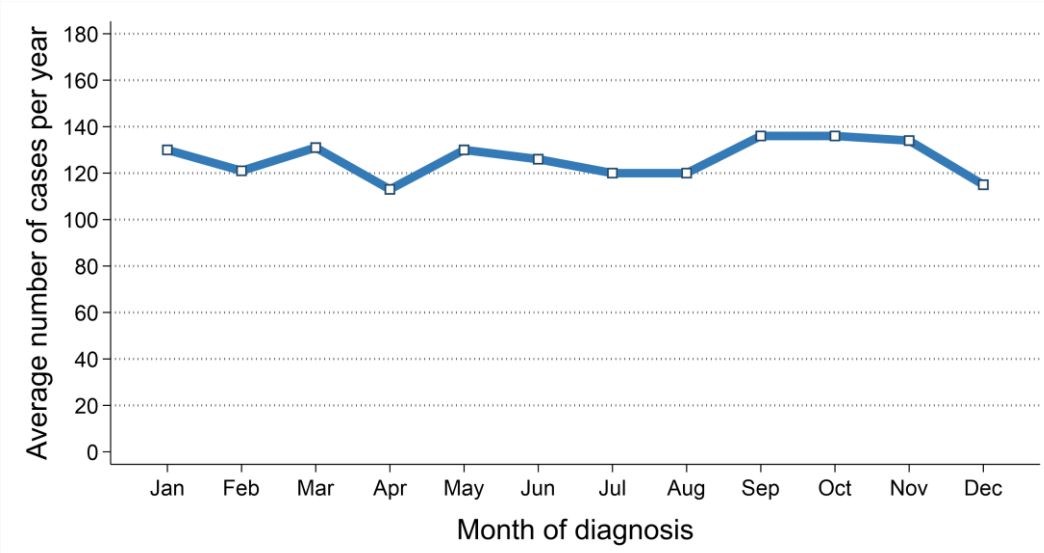
The Northern Ireland Cancer Registry (NICR) uses data provided by patients and collected by the health service as part of their care and support.

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

INCIDENCE

- There were 7,566 cases of female breast cancer diagnosed during 2018-2022 in Northern Ireland. On average this was 1,513 cases per year.
- The most common diagnosis month during 2018-2022 was September and October with 136 cases per year.

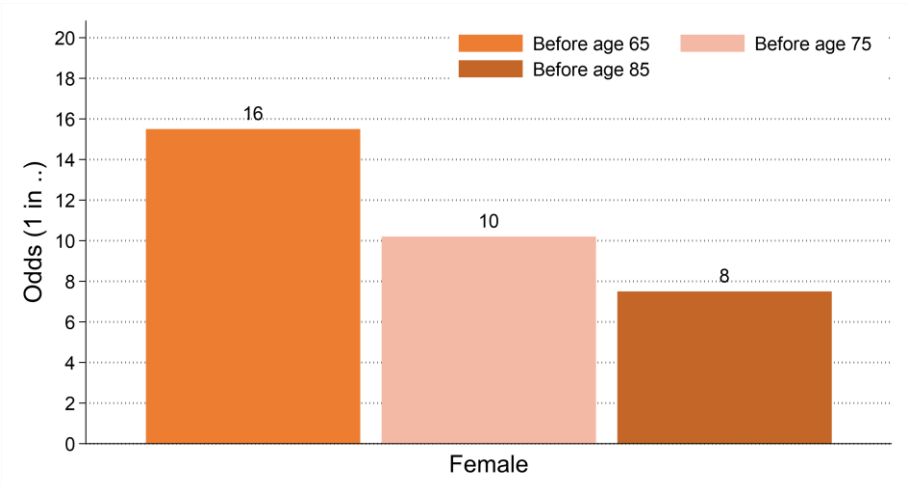
Figure 1: Average number of cases of female breast cancer per year in 2018-2022 by month of diagnosis



Month of diagnosis	Average number of cases per year Females
January	130
February	121
March	131
April	113
May	130
June	126
July	120
August	120
September	136
October	136
November	134
December	115

- The breast cancer incidence rate was 156.7 cases per 100,000 females.
- The odds of developing female breast cancer before age 85 was 1 in 8.

Figure 2: Odds of developing female breast cancer in 2018-2022



INCIDENCE BY AGE

- The median age of females diagnosed with breast cancer during 2018-2022 was 62 years.
- The risk of being diagnosed with breast cancer varied by age, with 23.0% of women diagnosed with breast cancer aged 75 and over at diagnosis.
- In contrast, 31.3% of women diagnosed with breast cancer were aged 0 to 54 at diagnosis.

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

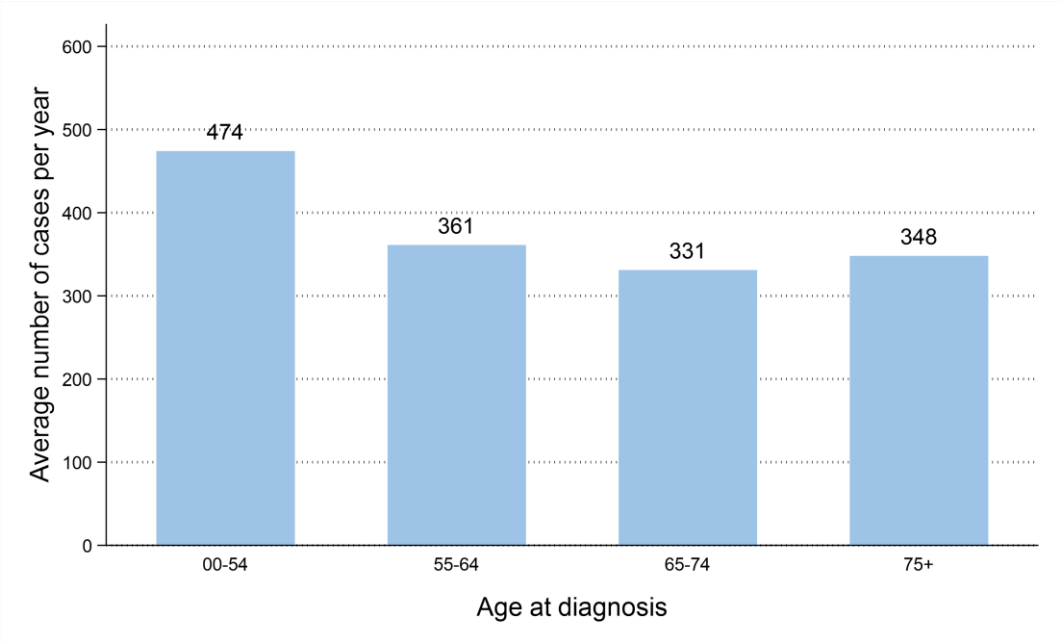
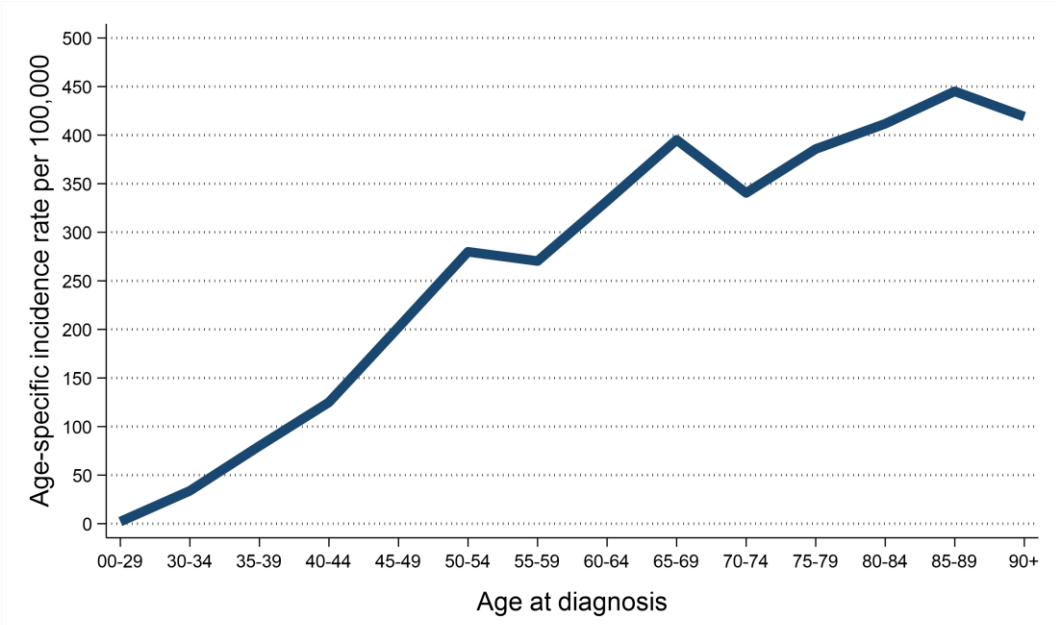


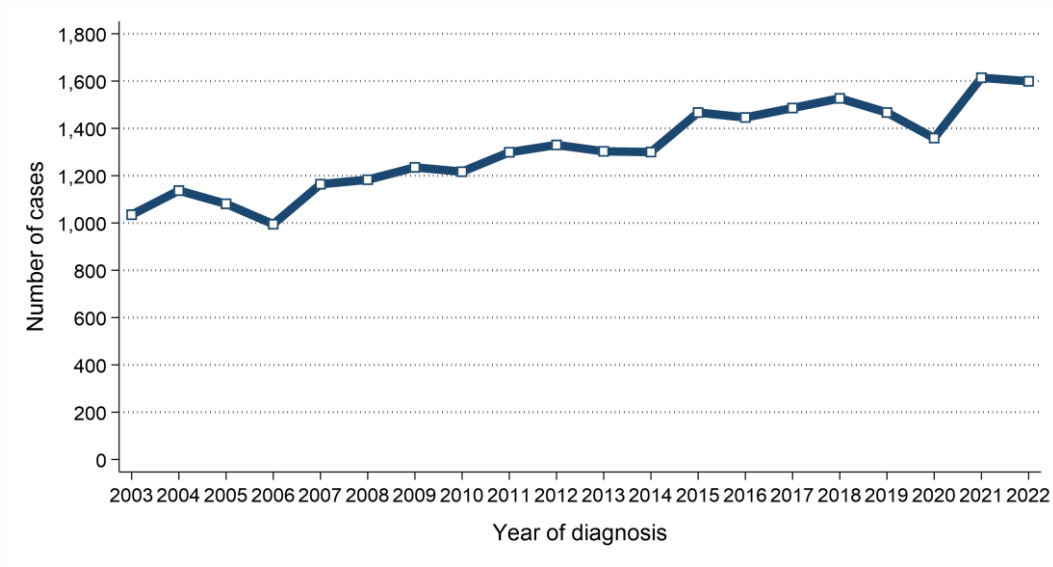
Figure 4: Age-specific incidence rates of female breast cancer in 2018-2022



INCIDENCE TRENDS

- The number of cases of breast cancer among females increased between 2013-2017 and 2018-2022 by 8.1% from 7,002 cases (1,400 cases per year) to 7,566 cases (1,513 cases per year).

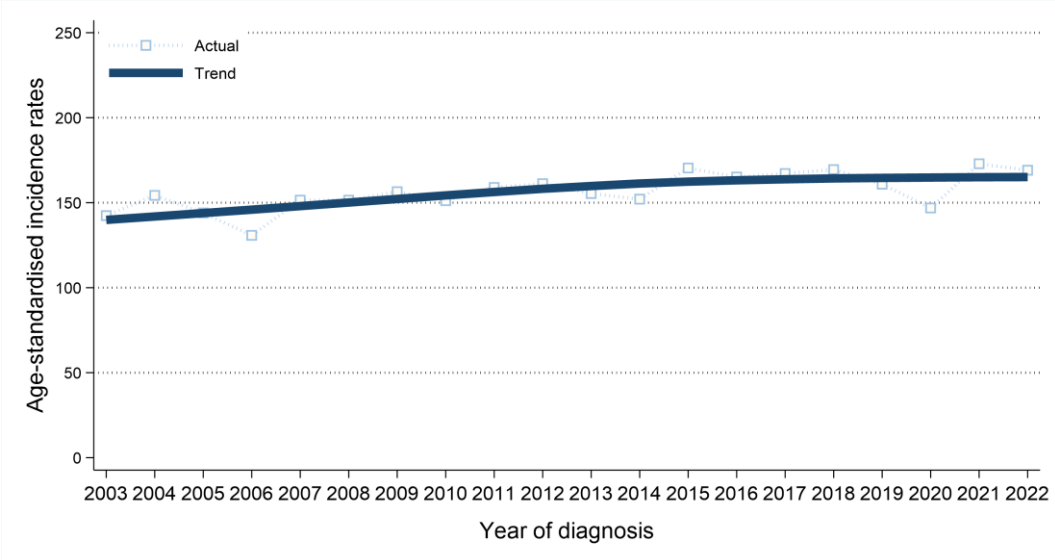
Figure 5: Trends in number of cases of female breast cancer diagnosed from 2003 to 2022



Year of diagnosis	Number of cases Females
2013	1,303
2014	1,300
2015	1,467
2016	1,446
2017	1,486
2018	1,527
2019	1,467
2020	1,359
2021	1,614
2022	1,599

- Female age-standardised breast cancer incidence rates increased between 2013-2017 and 2018-2022 by 1.0% from 162.2 to 163.9 cases per 100,000 females. This change was not statistically significant.

Figure 6: Trends in incidence rates of female breast cancer from 2003 to 2022



Age-standardised incidence rates illustrate the change in the number of cases within a population of a fixed size and age structure (2013 European Standard).

They thus represent changes other than those caused by population growth and/or ageing.

Trends can also be influenced by changes in how cancer is classified and coded. (e.g. the move from ICD-0-2 to ICD-0-3 in 2019).

INCIDENCE TRENDS BY AGE

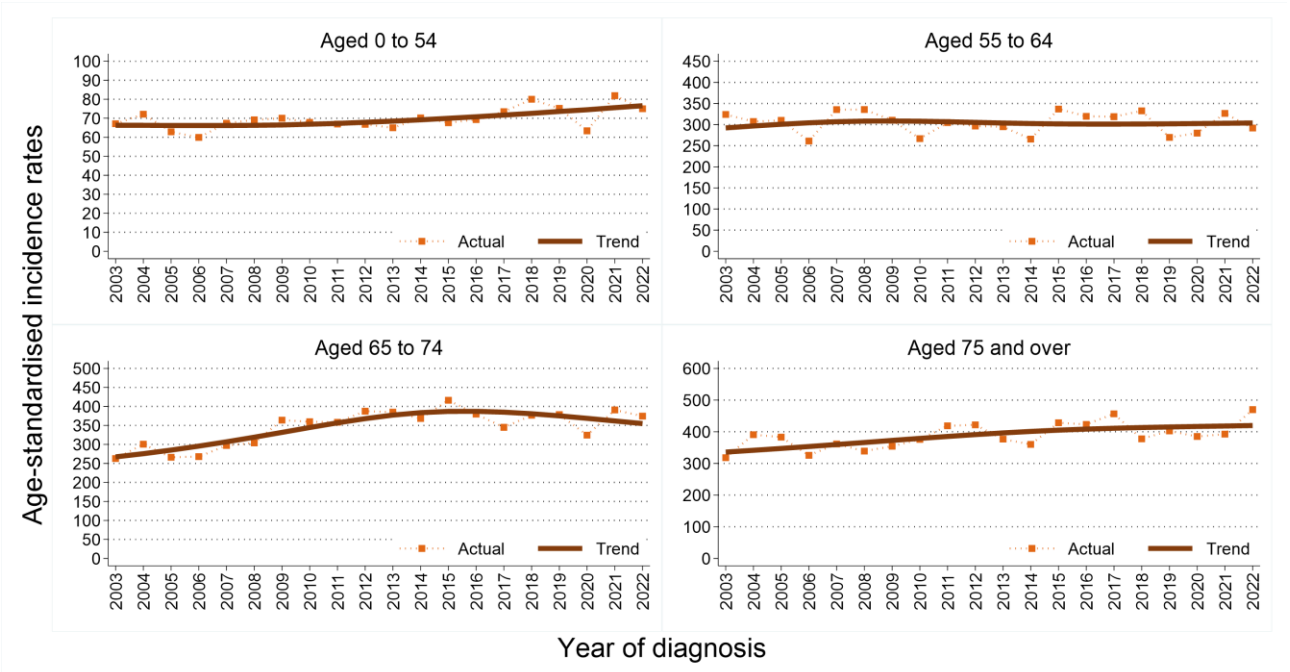
- Between 2013-2017 and 2018-2022 the number of cases of breast cancer among
  - Females aged 0 to 54 increased by 8.1%.
  - Females aged 55 to 64 increased by 11.5%.
  - Females aged 65 to 74 increased by 2.9%.
  - Females aged 75 and over increased by 9.7%.

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

Age at diagnosis	Female	
	2013-2017	2018-2022
All ages	**1,400**	**1,513**
	.	.
0 to 54	438	474
55 to 64	324	361
65 to 74	321	331
75 and over	317	348

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

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



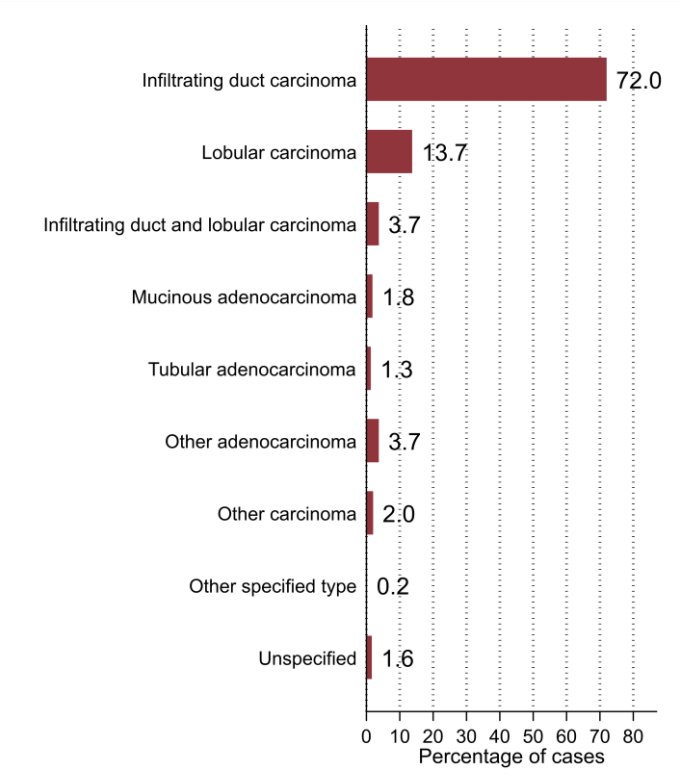
INCIDENCE BY HISTOLOGICAL TYPE

- During 2018-2022 98.4% of female breast cancer cases had a histological type specified.
- Of the 123 cases with an unspecified type 83.7% were not microscopically verified.
- The most common breast cancer histological types were infiltrating duct carcinoma (72.0%) and lobular carcinoma (13.7%).

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

Histological type	Female	
	Total cases in period	Average cases per year
All types	**7,566**	**1,513**
	.	.
Infiltrating duct and lobular carcinoma	281	56
Infiltrating duct carcinoma	5,450	1,090
Lobular carcinoma	1,035	207
Mucinous adenocarcinoma	134	27
Tubular adenocarcinoma	96	19
Other adenocarcinoma	281	56
Other carcinoma	151	30
Other specified type	15	3
Unspecified	123	25

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



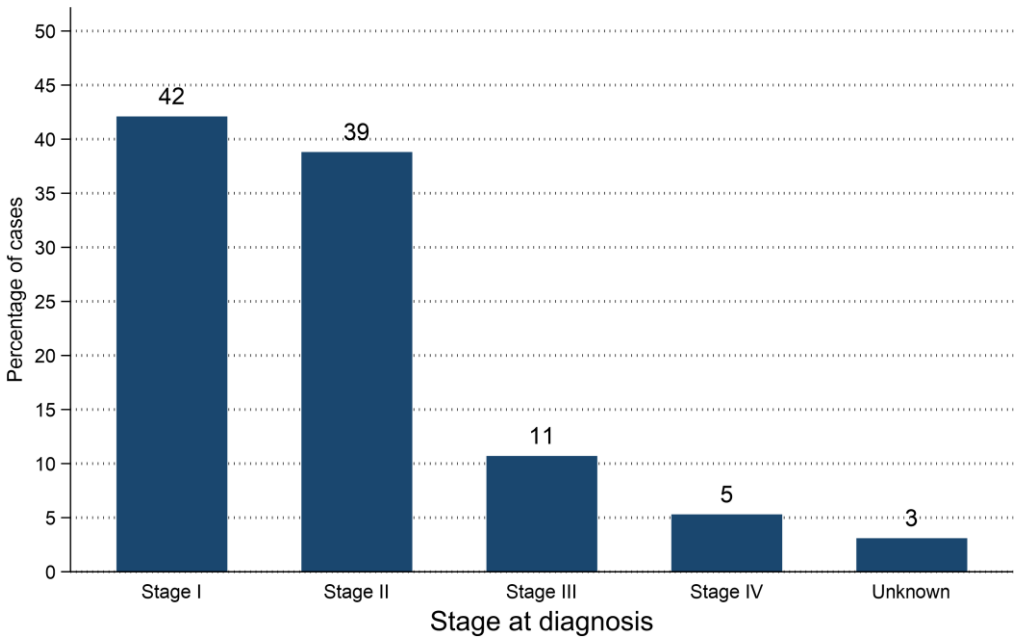
INCIDENCE BY STAGE AT DIAGNOSIS

- During 2018-2022 96.9% of female breast cancer cases had a stage assigned.
- 42.1% of female breast cancer cases were diagnosed at Stage I. (43.5% of staged cases)
- 5.3% of female breast cancer cases were diagnosed at Stage IV. (5.5% of staged cases)

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

Stage at diagnosis	Female	
	Total cases in period	Average cases per year
All stages	**7,566**	**1,513**
	.	.
Stage I	3,186	637
Stage II	2,936	587
Stage III	806	161
Stage IV	404	81
Unknown	234	47

Figure 9: Proportion of cases of female breast cancer diagnosed in 2018-2022 by stage at diagnosis



Cancer stage describes the size of a cancer and how far it has grown and spread.

This information is used to help decide what treatments are needed.

The classification used here to stage cancer is the TNM classification (Version 7 prior to 2018, Version 8 from 2018 onwards).

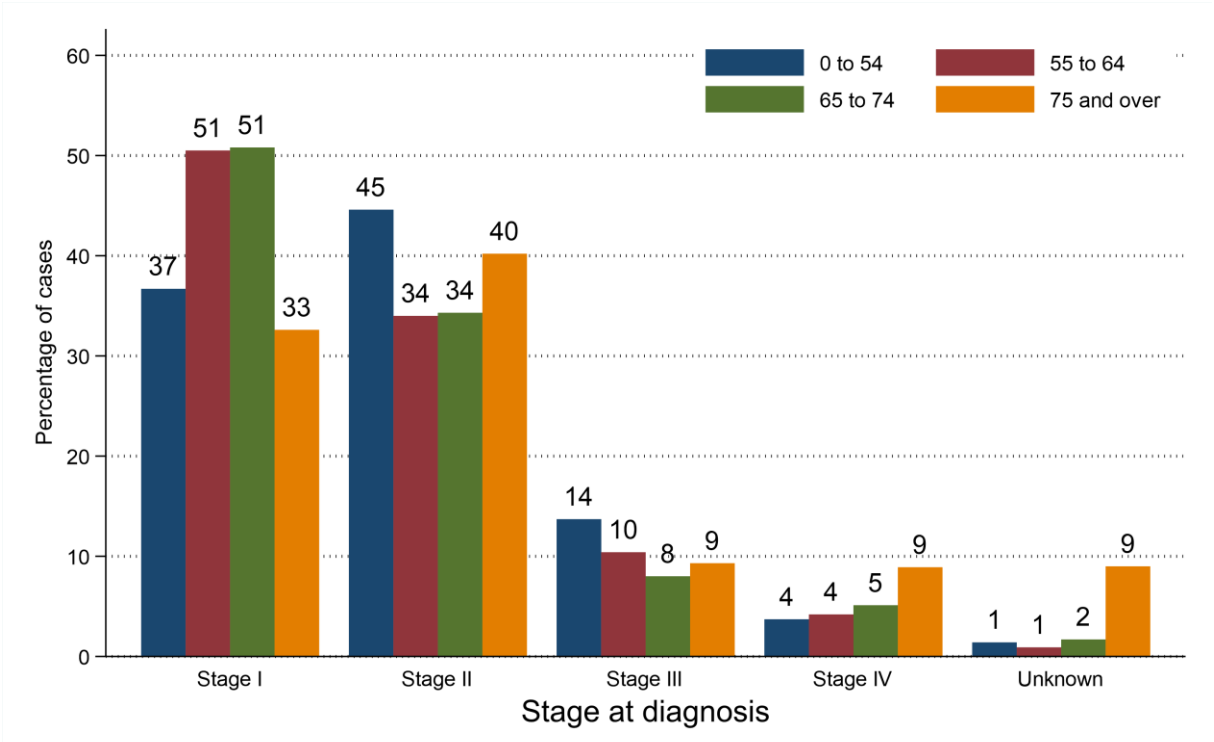
INCIDENCE BY STAGE AND AGE AT DIAGNOSIS

- During 2018-2022 91.0% of female breast cancer cases among those aged 75 and over had a stage assigned compared to 98.6% of those aged 0 to 54.
- 32.6% of female breast cancer cases among those aged 75 and over were diagnosed at Stage I (35.8% of staged cases) compared to 36.7% of those aged 0 to 54 (37.2% of staged cases).
- 8.9% of female breast cancer cases among those aged 75 and over were diagnosed at Stage IV (9.8% of staged cases) compared to 3.7% of those aged 0 to 54 (3.8% of staged cases).

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

Stage at diagnosis	Age at diagnosis				
	All ages	0 to 54	55 to 64	65 to 74	75 and over
All stages	**1,513**	**474**	**361**	**331**	**348**
	.	.	.	.	.
Stage I	637	174	182	168	113
Stage II	587	211	123	114	140
Stage III	161	65	37	27	32
Stage IV	81	18	15	17	31
Unknown	47	6	3	6	31

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



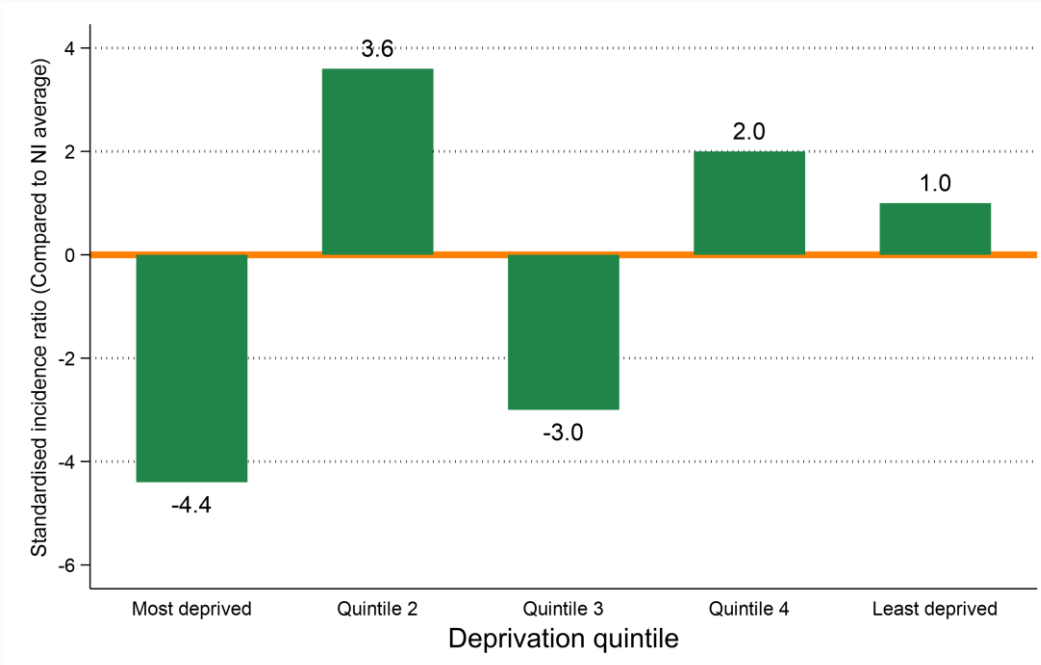
INCIDENCE BY DEPRIVATION

- The number of cases of female breast cancer diagnosed during 2018-2022 varied in each deprivation quintile due to variations in population size and age.
- After accounting for these factors, incidence rates:
  - in the most socio-economically deprived areas did not vary significantly from the NI average.
  - in the least socio-economically deprived areas did not vary significantly from the NI average.

Table 5: Number of cases of female breast cancer diagnosed in 2018-2022 by deprivation quintile

Deprivation quintile	Female	
	Total cases in period	Average cases per year
Northern Ireland	**7,566**	**1,513**
	.	.
Most deprived	1,224	245
Quintile 2	1,569	314
Quintile 3	1,526	305
Quintile 4	1,641	328
Least deprived	1,606	321
Unknown	0	0

Figure 11: Standardised incidence ratio comparing deprivation quintile to Northern Ireland for female breast cancer diagnosed in 2018-2022



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

A value above 0 means that incidence rates in that deprivation quintile are greater than the NI average.

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

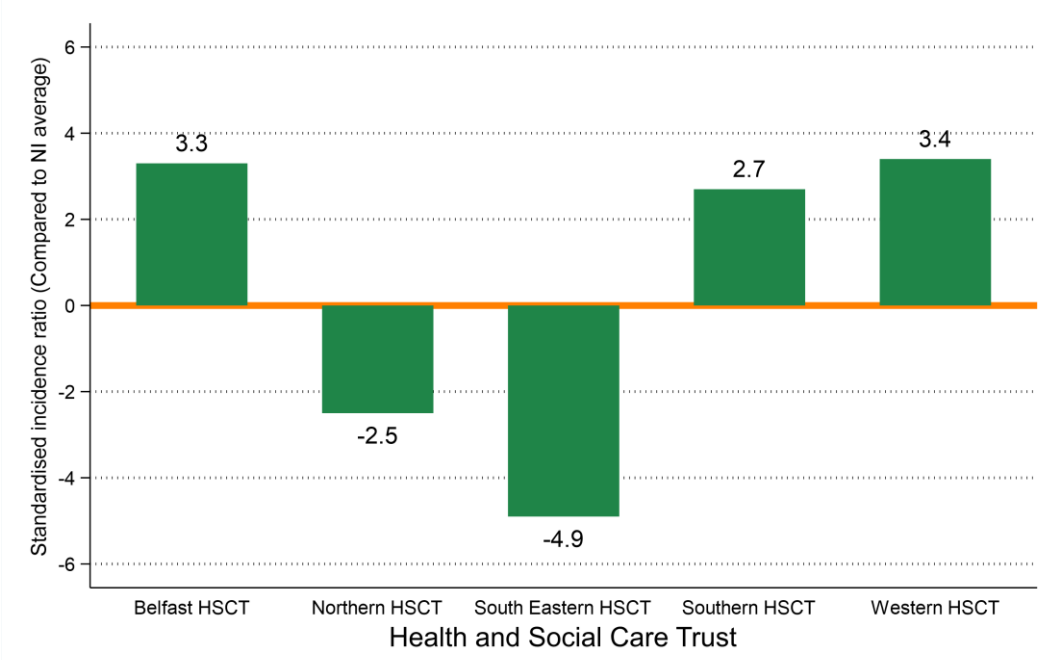
INCIDENCE BY HEALTH AND SOCIAL CARE TRUST

- The number of cases of female breast cancer diagnosed during 2018-2022 varied in each Health and Social Care Trust due to variations in population size and age.
- After accounting for these factors, incidence rates:
  - in Belfast HSCT 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 6: Number of cases of female breast cancer diagnosed in 2018-2022 by Health and Social Care Trust

Health and Social Care Trust	Female	
	Total cases in period	Average cases per year
Northern Ireland	**7,566**	**1,513**
	.	.
Belfast HSCT	1,429	286
Northern HSCT	1,935	387
South Eastern HSCT	1,495	299
Southern HSCT	1,484	297
Western HSCT	1,223	245
Unknown	0	0

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



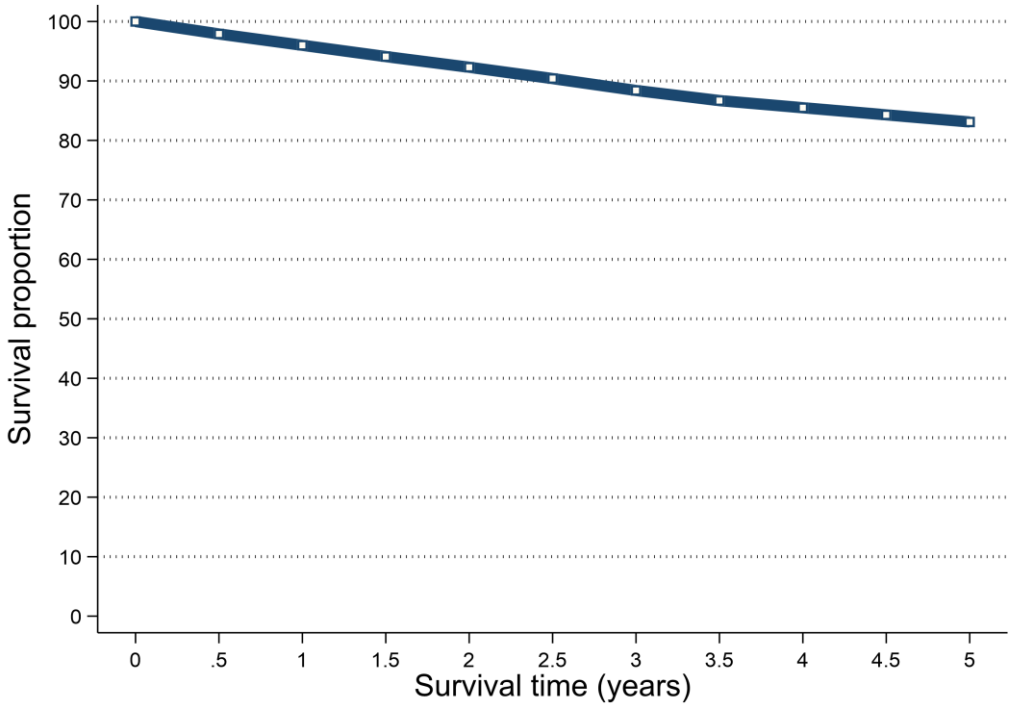
SURVIVAL

- 94.9% of patients were alive one year and 77.8% were alive five years from a breast cancer diagnosis in 2013-2017. (observed survival)
- Age-standardised net survival (ASNS), which removes the effect of deaths from causes unrelated to cancer, was 96.0% one year and 83.1% five years from a breast cancer diagnosis in 2013-2017.

Table 7: Survival from female breast cancer for patients diagnosed in 2013-2017

Time since diagnosis	Female	
	Observed survival	Age-standardised net survival
6 months	97.4%	97.9%
One year	94.9%	96.0%
Two years	89.9%	92.3%
Five years	77.8%	83.1%

Figure 13: Age-standardised net survival from female breast cancer for patients diagnosed in 2013-2017



Observed survival examines the time between diagnosis and death from any cause, however, due to the inclusion of non-cancer deaths it may not fully reflect how changes in cancer care impact survival from cancer.

Age-standardised net survival provides an estimate of patient survival which has been adjusted to take account of deaths unrelated to cancer. It is more widely used to assess the impact of changes in cancer care on patient survival.

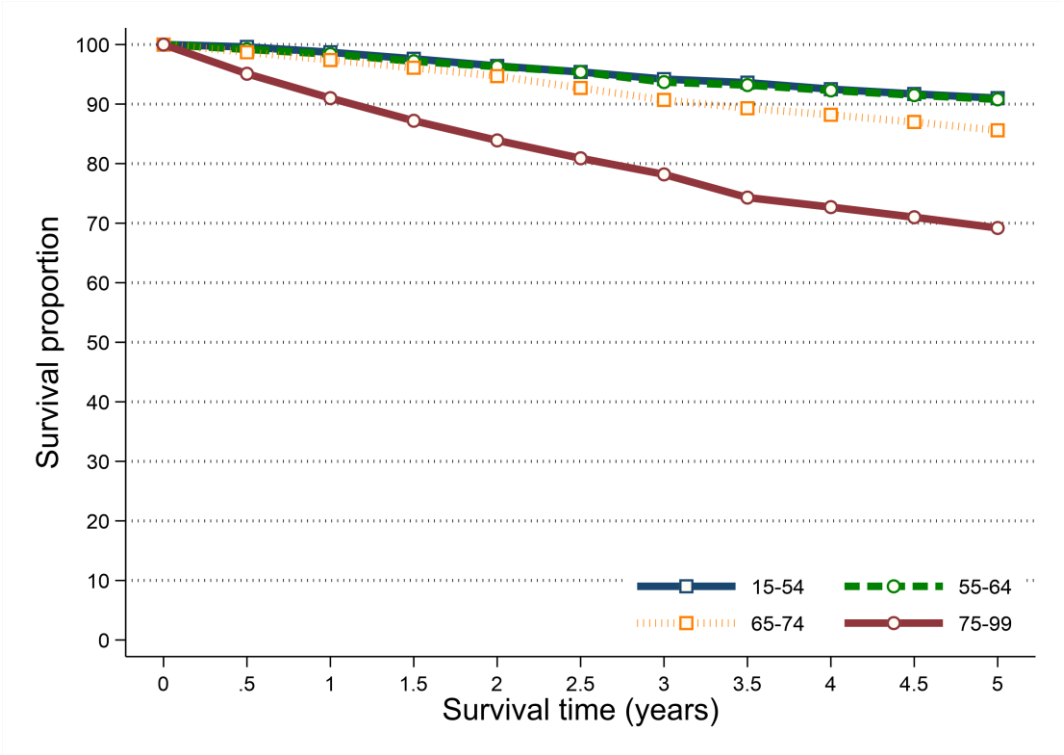
SURVIVAL BY AGE

- Survival from female breast cancer among patients diagnosed during 2013-2017 was related to age with better five-year survival among younger age groups.
- Five-year net survival ranged from 91.0% among patients aged 15 to 54 at diagnosis to 69.2% among those aged 75 to 99.

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

Age group	Female	
	One-year	Five-years
15 to 54	98.7%	91.0%
55 to 64	98.4%	90.8%
65 to 74	97.4%	85.6%
75 to 99	91.0%	69.2%

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

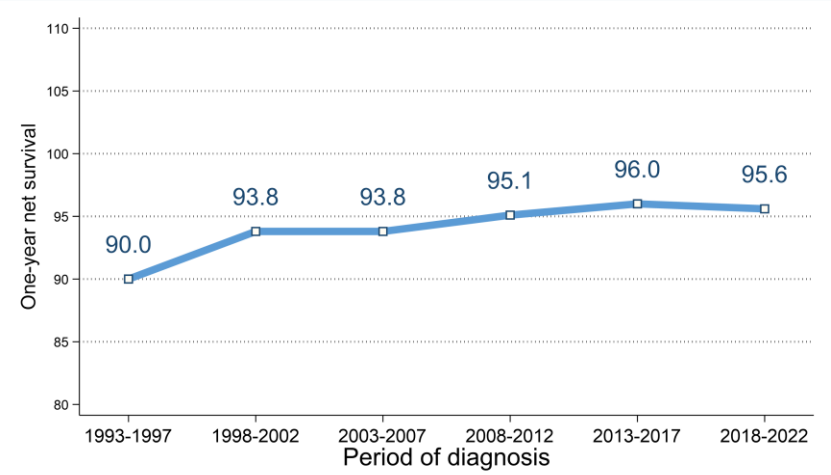


SURVIVAL TRENDS

ONE-YEAR NET SURVIVAL

- Between 2013-2017 and 2018-2022 there was no significant change in one-year survival (ASNS) from breast cancer among females.
- Compared to 1993-1997 one-year survival (ASNS) from breast cancer among females in 2018-2022 increased significantly from 90.0% to 95.6%.

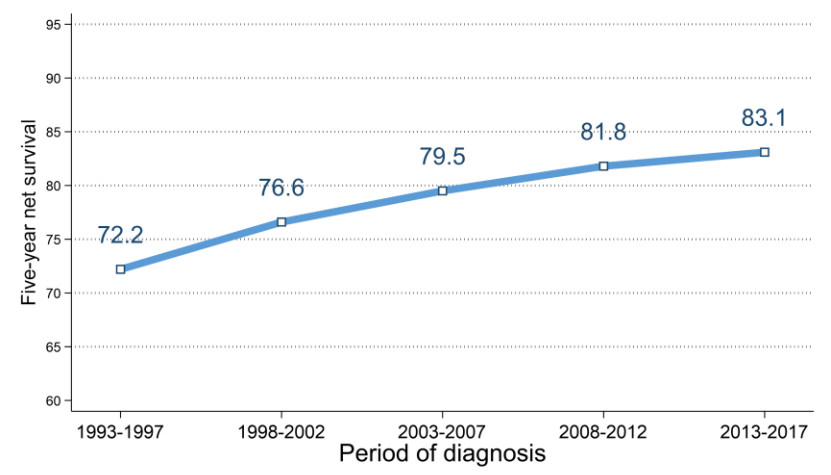
Figure 15: Trends in one-year age-standardised net survival from female breast cancer in 1993-2022



FIVE-YEAR NET SURVIVAL

- Between 2008-2012 and 2013-2017 there was no significant change in five-year survival (ASNS) from breast cancer among females.
- Compared to 1993-1997 five-year survival (ASNS) from breast cancer among females in 2013-2017 increased significantly from 72.2% to 83.1%.

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



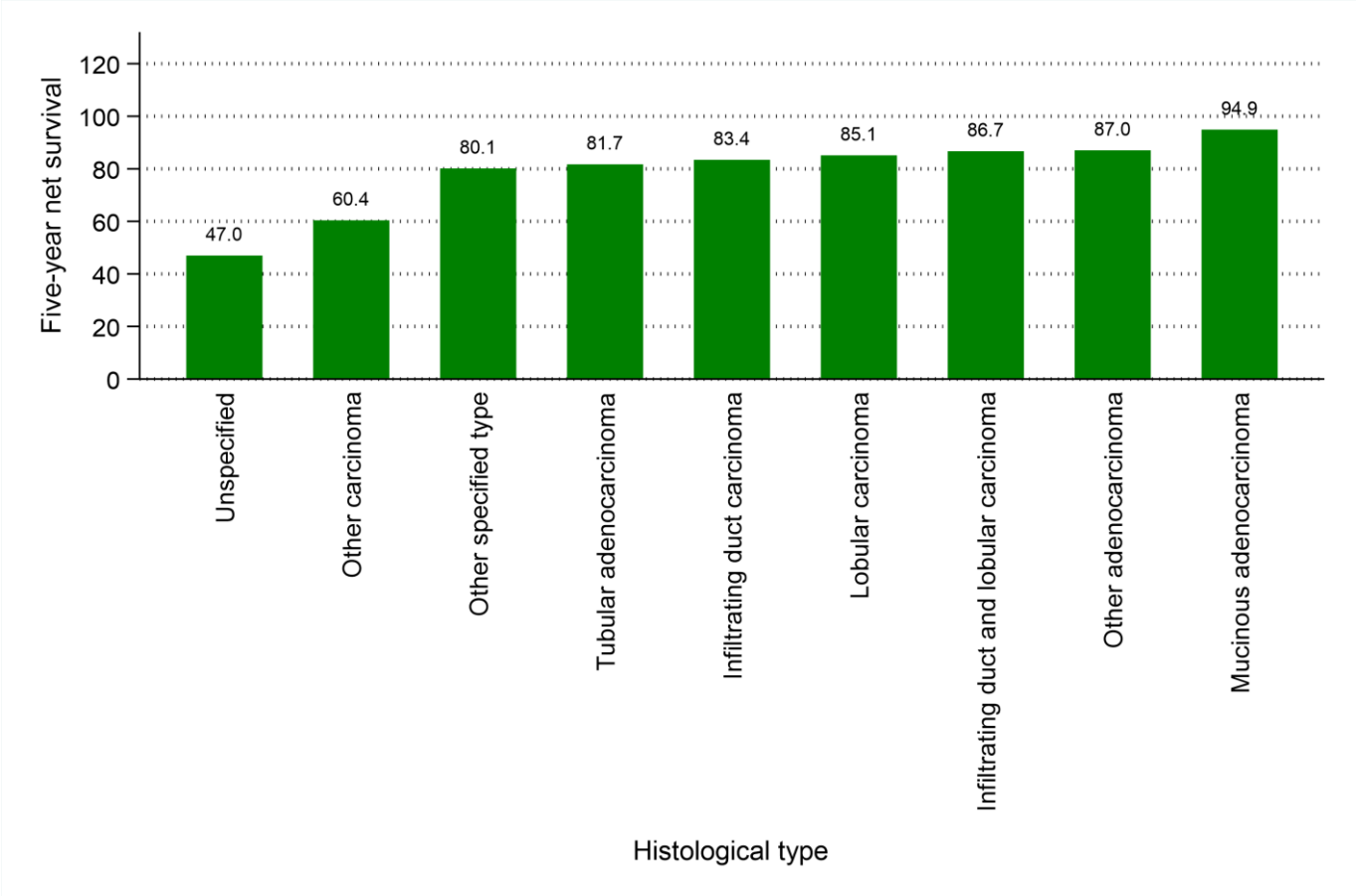
SURVIVAL BY HISTOLOGICAL TYPE

- Five-year survival (ASNS) for patients diagnosed in 2013-2017 ranged from 94.9% for mucinous adenocarcinoma to 47.0% for those with an unspecified histological type.

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

Histological type	Female	
	One-year	Five-years
Infiltrating duct and lobular carcinoma	95.9%	86.7%
Infiltrating duct carcinoma	97.2%	83.4%
Lobular carcinoma	95.3%	85.1%
Mucinous adenocarcinoma	99.4%	94.9%
Tubular adenocarcinoma	93.7%	81.7%
Other adenocarcinoma	96.3%	87.0%
Other carcinoma	74.4%	60.4%
Other specified type	96.8%	80.1%
Unspecified	65.8%	47.0%

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



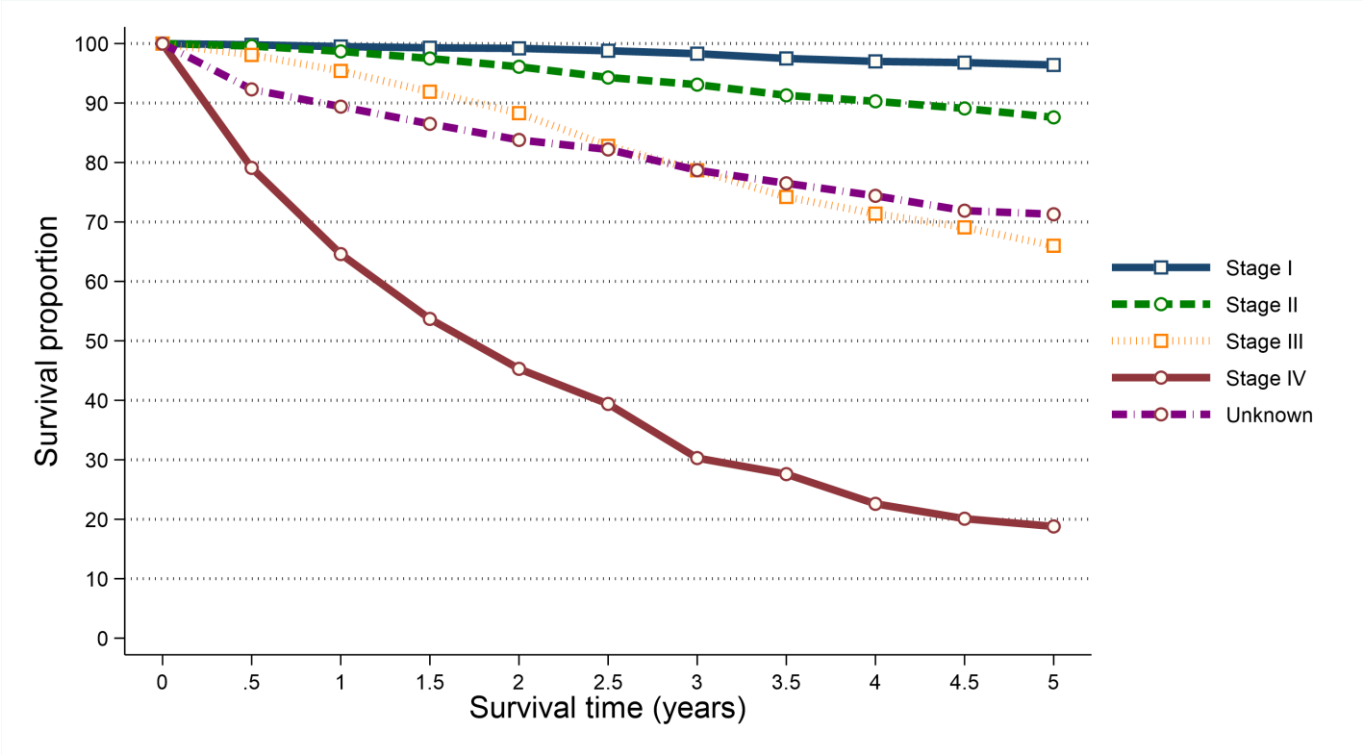
SURVIVAL BY STAGE

- Survival from female breast cancer among patients diagnosed during 2013-2017 was strongly related to stage with better five-year survival among those diagnosed at earlier stages.
- Five-year survival (ASNS) ranged from 96.4% among patients diagnosed at Stage I to 18.8% among those diagnosed at Stage IV.

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

Stage at diagnosis	Female	
	One-year	Five-years
Stage I	99.5%	96.4%
Stage II	98.7%	87.6%
Stage III	95.4%	66.0%
Stage IV	64.6%	18.8%
Unknown	89.4%	71.3%

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



PREVALENCE

- At the end of 2022, there were 18,207 females living with breast cancer who had been diagnosed with the disease during 1998-2022.
- Of these 8.2% had been diagnosed in the previous year (one-year prevalence) and 61.0% in the previous 10 years (ten-year prevalence).
- 30.0% of female breast cancer survivors were aged 75 and over at the end of 2022.

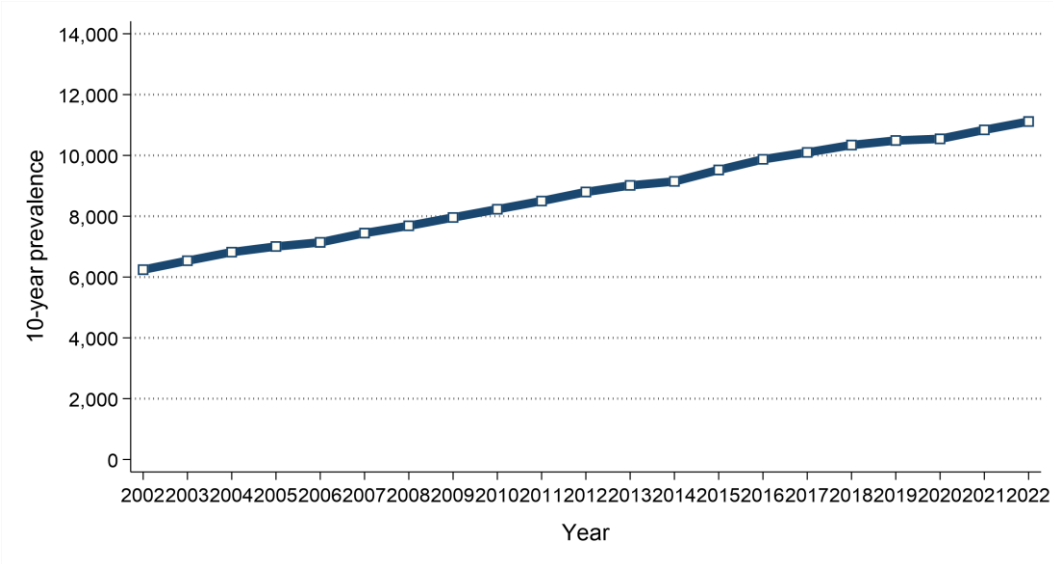
Table 11: 25-year prevalence of female breast cancer by age at end of 2022

Age at end of 2022	25-year prevalence	Time since diagnosis			
		0 to 1 year	1 to 5 years	5 to 10 years	10 to 25 years
All ages	18,207	1,493	4,928	4,693	7,093
0 to 74	12,740	1,122	3,872	3,403	4,343
75 and over	5,467	371	1,056	1,290	2,750

PREVALENCE TRENDS

- 10-year prevalence of breast cancer among females increased between 2017 and 2022 by 10.1% from 10,098 survivors to 11,114 survivors.

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



Year	10-year prevalence Females
2013	9,013
2014	9,144
2015	9,522
2016	9,871
2017	10,098
2018	10,341
2019	10,490
2020	10,545
2021	10,841
2022	11,114

MORTALITY

- There were 1,550 deaths from female breast cancer during 2018-2022 in Northern Ireland. On average this was 310 deaths per year.
- Breast cancer deaths made up 14.3% of all female cancer deaths.
- The median age of females who died from breast cancer during 2018-2022 was 74 years.
- The risk of dying from breast cancer varied by age, with 48.8% of women who died from breast cancer aged 75 and over at death.
- In contrast, 14.8% of women who died from breast cancer were aged 0 to 54 at death.

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

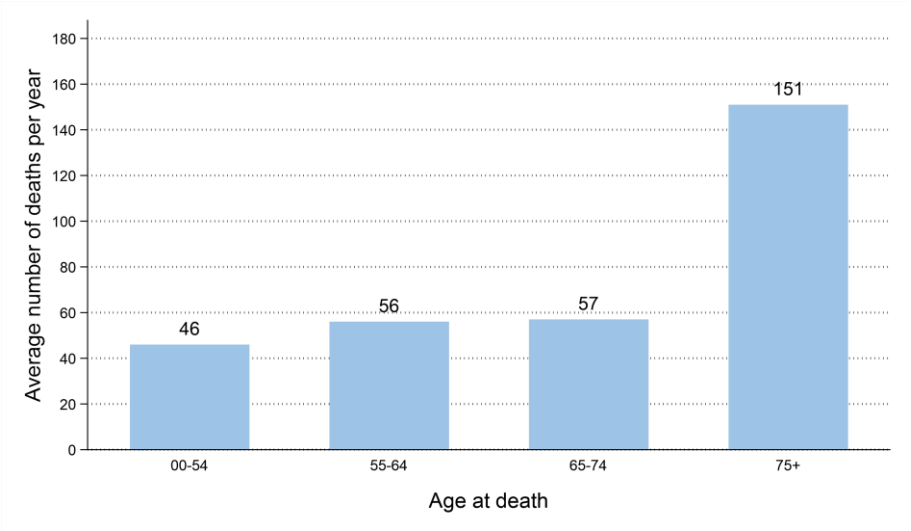
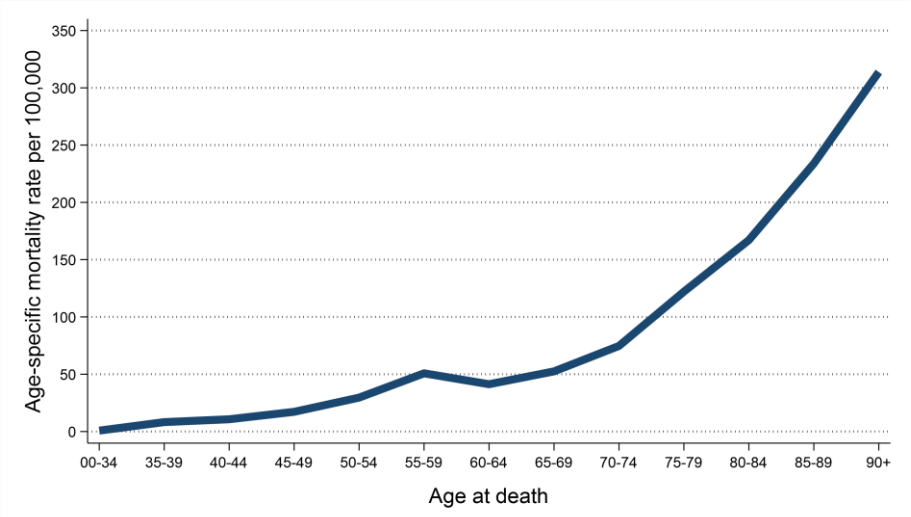


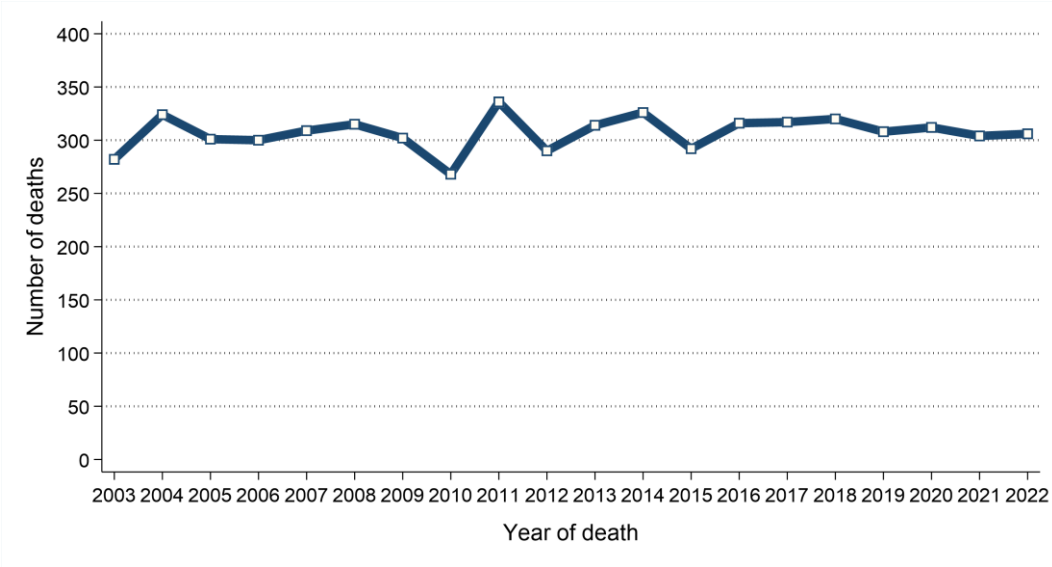
Figure 21: Age-specific mortality rates of female breast cancer in 2018-2022



MORTALITY TRENDS

- The number of deaths from breast cancer among females decreased between 2013-2017 and 2018-2022 by 1.0% from 1,565 deaths (313 deaths per year) to 1,550 deaths (310 deaths per year).

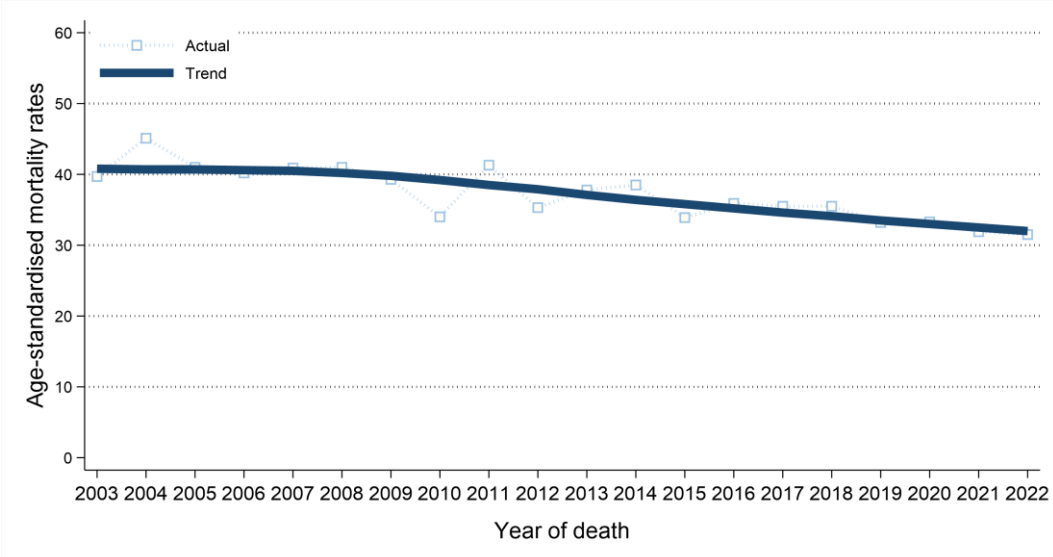
Figure 22: Trends in the number of deaths from female breast cancer from 2003 to 2022



Year of death	Number of deaths Females
2013	314
2014	326
2015	292
2016	316
2017	317
2018	320
2019	308
2020	312
2021	304
2022	306

- Female age-standardised breast cancer mortality rates decreased between 2013-2017 and 2018-2022 by 8.8% from 36.3 to 33.1 deaths per 100,000 females. This change was not statistically significant.

Figure 23: Trends in mortality rates of female breast cancer from 2003 to 2022



Age-standardised mortality rates illustrate the change in the number of deaths within a population of a fixed size and age structure (2013 European Standard).

They thus represent changes other than those caused by population growth and/or ageing.

Trends can also be influenced by changes in how cancer is classified and coded.

BACKGROUND NOTES

Cancer classification: Classification of tumour sites is carried out using ICD10 codes. For a listing and explanation of ICD10 codes see: World Health Organisation at http://apps.who.int/classifications/icd10/browse/2010/en#/II

Population data: Population data for Northern Ireland, and smaller geographic areas, are extracted from the NI mid-year population estimates available from the NI Statistics and Research Agency (available at www.nisra.gov.uk).

Geographic areas: Geographic areas are assigned based on a patient's postcode of usual residence at diagnosis using the Jul 2024 Central Postcode Directory (CPD) produced by the NI Statistics and Research Agency (available at www.nisra.gov.uk).

Deprivation quintiles: Super output areas (SOA) are assigned to each patient based on their postcode of usual residence at diagnosis. Using the SOA each patient is assigned a socio-economic deprivation quintile based on the 2017 Multiple Deprivation Measure. The 2017 Multiple Deprivation Measure is available from the NI Statistics and Research Agency (available at www.nisra.gov.uk).

Crude incidence/mortality rate: The number of cases/deaths per 100,000 person years in the population. Person years are the sum of the population over the number of years included.

Age-standardised incidence/mortality rates per 100,000 person years are estimates of the incidence/mortality rate if that population had a standard age structure. Throughout this report the 2013 European Standard Population has been used. Standardising to a common Standard Population allows comparisons of incidence/mortality rates to be made between different time periods and geographic areas while removing the effects of population change and ageing.

Standardised Incidence/Mortality Ratio (SIR/SMR) is the ratio of the number of cases/deaths observed in a population to the expected number of cases/deaths, based upon the age-specific rates in a reference population. This statistic is often used to compare incidence/mortality rates for geographic areas (e.g. Trusts) to the national incidence/mortality rates (i.e. Northern Ireland). An SIR/SMR of 100 indicates there is no difference between the geographic area and the national average.

Confidence intervals measure the precision of a statistic (e.g. female breast 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. female breast cancer incidence rate in year 2012 vs year 2013), if the confidence interval around one statistic overlaps with the interval around another, it is unlikely that there is any real difference between the two. If there is no overlap, the difference is considered to be statistically significant.

Lifetime risk is estimated as the cumulative risk of getting cancer up to age 75/85, calculated directly from the age-specific incidence rates. The odds of developing the disease before age 75/85 is the inverse of the cumulative risk.

Prevalence is the number of cancer patients who are alive in the population on a specific date (31st December 2022 in this report). Since data from the NI Cancer Registry are only available since 1993, prevalence only refers to a fixed term (10 and 25 years in this report). There may be members of the population living with a diagnosis of cancer for more than 25 years.

Patient survival is evaluated using two measures. Observed survival examines the time between diagnosis and death from any cause. It thus represents what cancer patients experience, however, due to the inclusion of non-cancer deaths (e.g. heart disease), it may not reflect how changes in cancer care impact survival from cancer. Thus age-standardised net survival is also examined. This measure provides an estimate of patient survival which has been adjusted to take account of deaths unrelated to cancer. It also assumes a standard age distribution thereby removing the impact of changes in the age distribution of cancer patients on changes in survival over time. While this measure is hypothetical, as it assumes patients can only die from cancer related factors, it is a better indicator of the impact of changes in cancer care on patient survival.