
Female breast cancer

1993-2021

(ICD10 codes: C50)



Northern Ireland Cancer Registry, 2023

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 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. Female breast cancer: 1993-2021. Available at:
www.qub.ac.uk/research-centres/nicr

Further information

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

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Acknowledgements

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

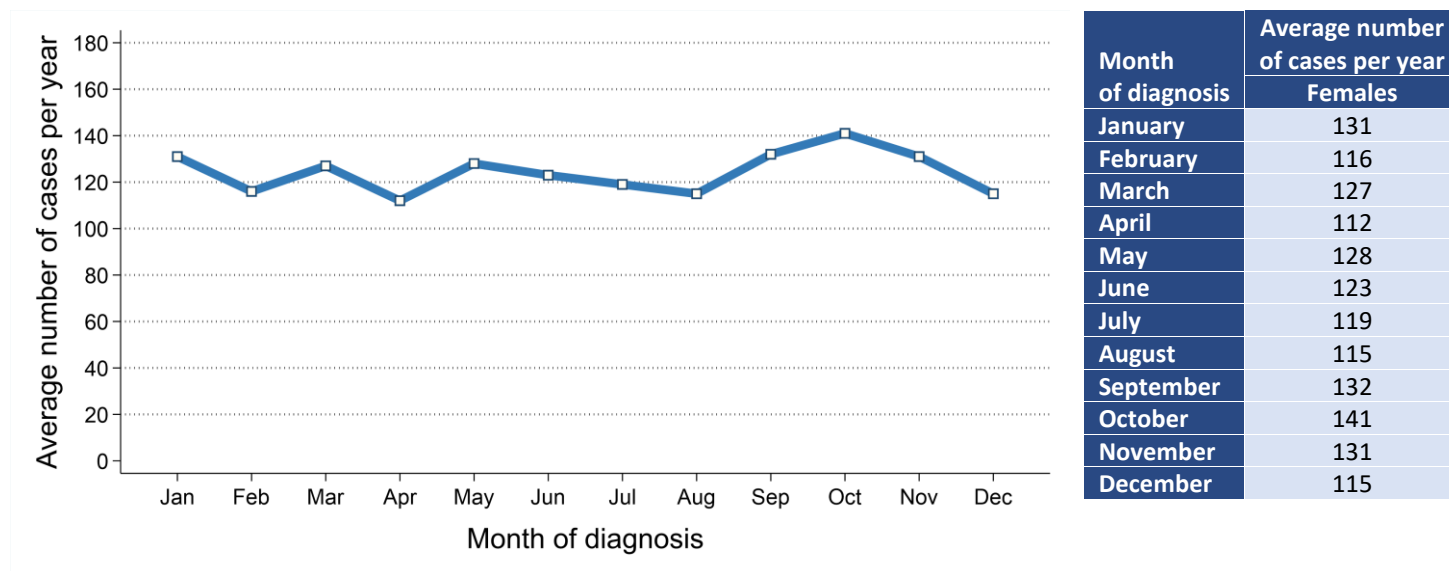
NICR is funded by the Public Health Agency and is based in Queen's University, Belfast.



INCIDENCE

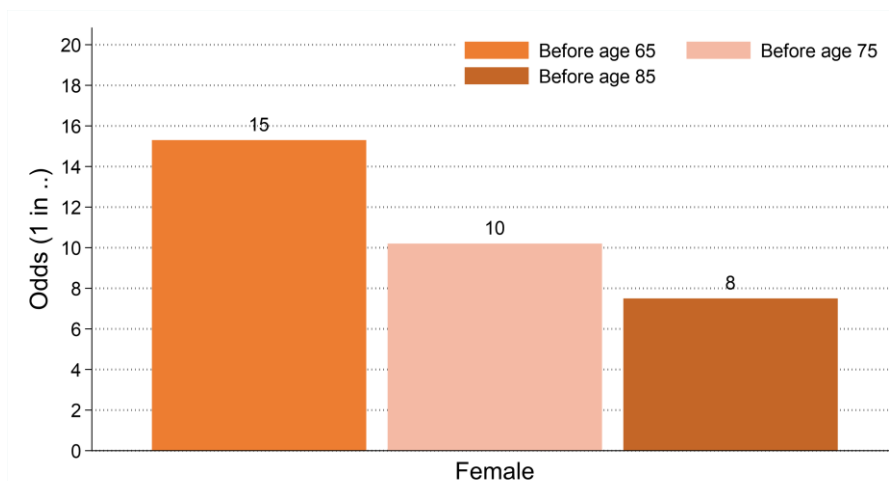
- There were 7,451 cases of female breast cancer diagnosed during 2017-2021 in Northern Ireland. On average this was 1,490 cases per year.
- The most common diagnosis month during 2017-2021 was October with 141 cases per year.

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



- The breast cancer incidence rate was 155.4 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 2017-2021



INCIDENCE BY AGE

- The median age of females diagnosed with breast cancer during 2017-2021 was 62 years.
- The risk of being diagnosed with breast cancer varied by age, with 22.6% of women diagnosed with breast cancer aged 75 and over at diagnosis.
- In contrast, 31.7% 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 2017-2021 by age at diagnosis

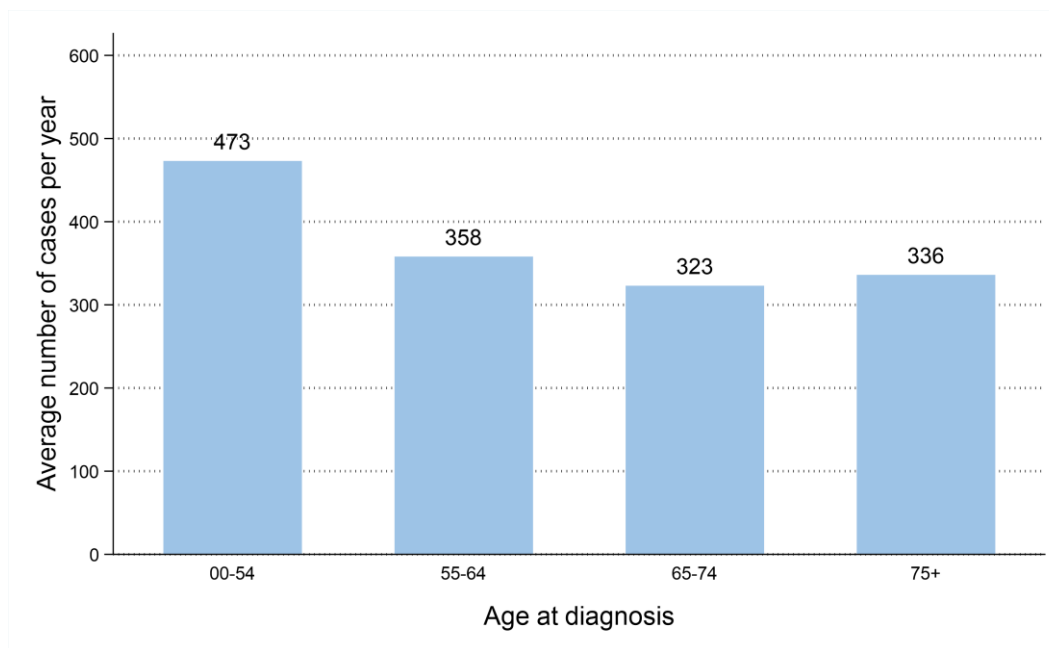
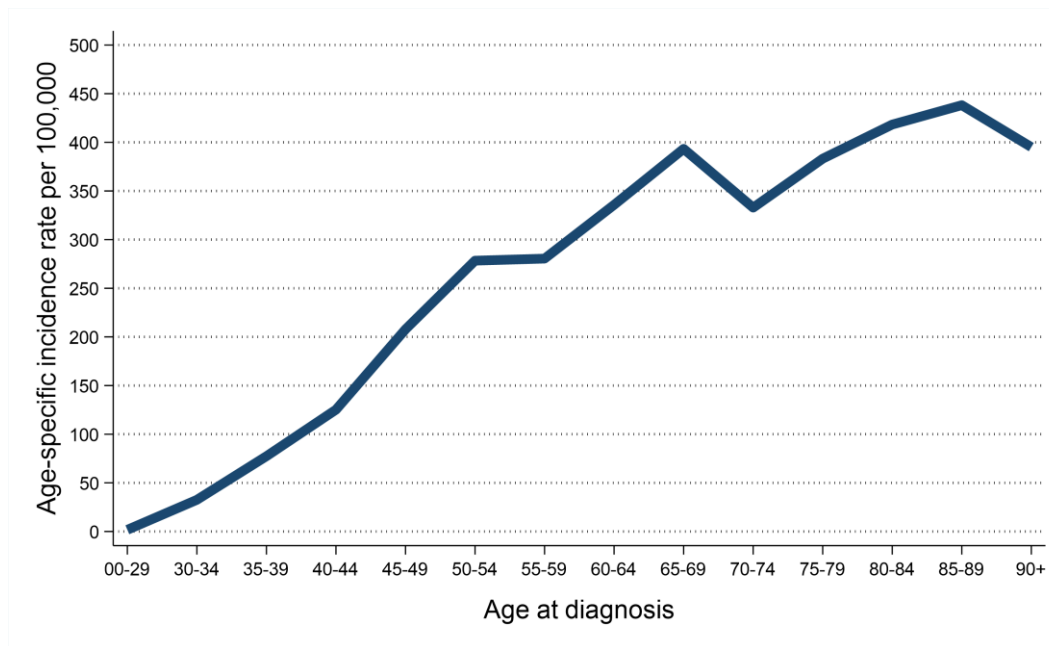


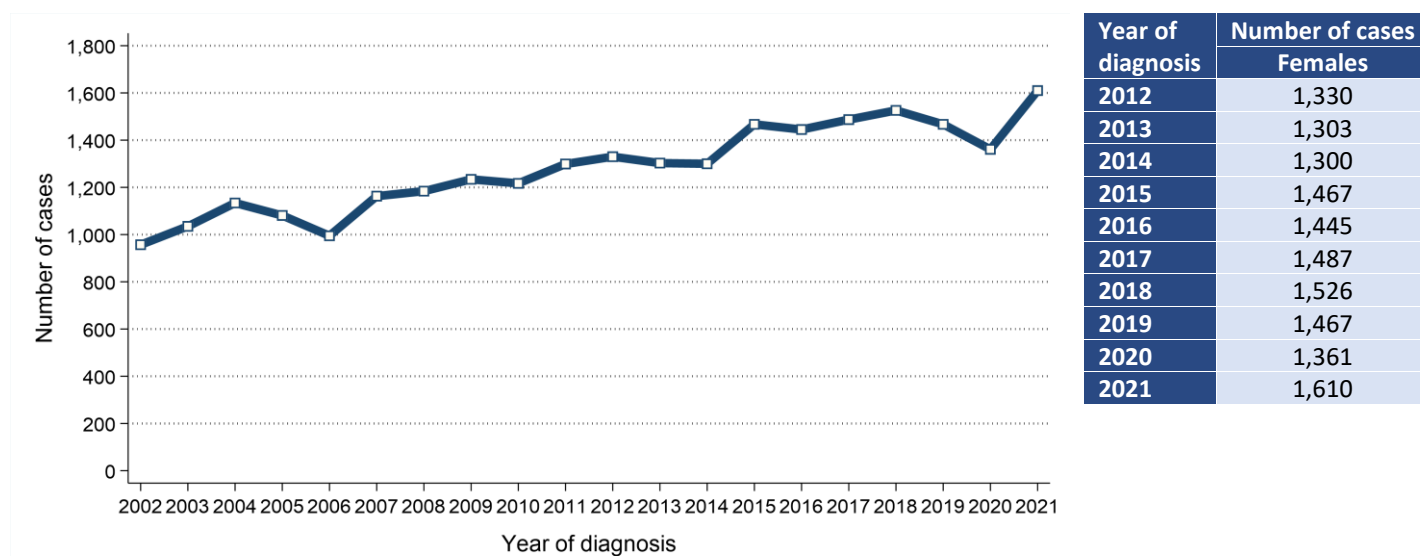
Figure 4: Age-specific incidence rates of female breast cancer in 2017-2021



INCIDENCE TRENDS

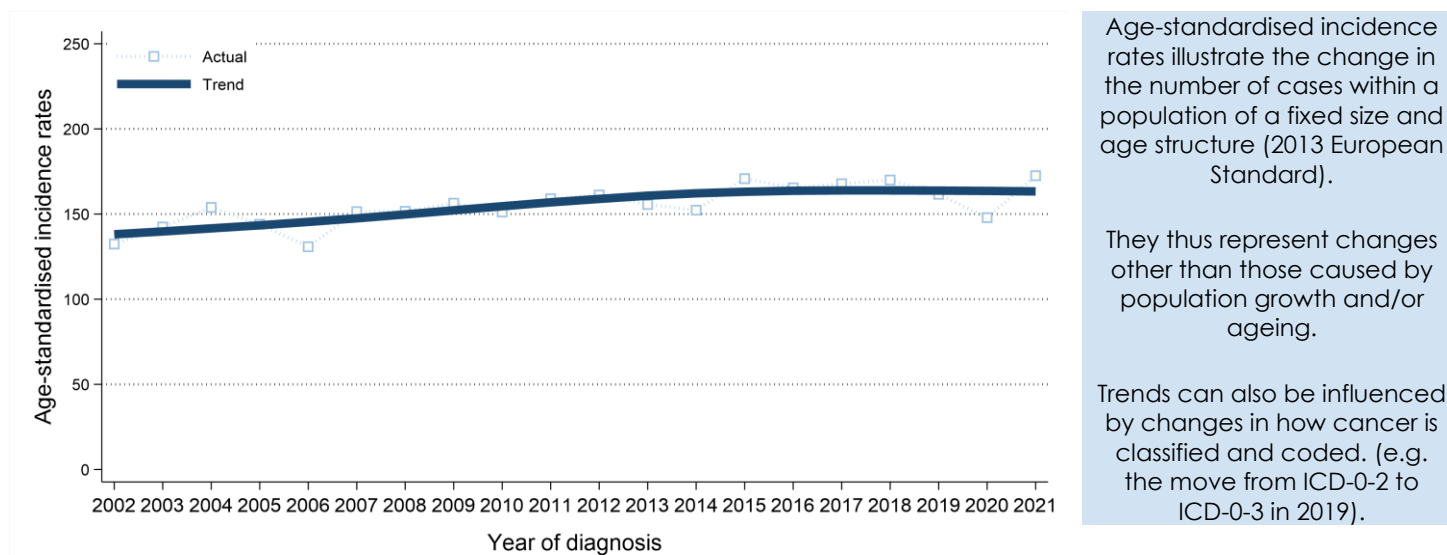
- The number of cases of breast cancer among females increased between 2012-2016 and 2017-2021 by 8.9% from 6,845 cases (1,369 cases per year) to 7,451 cases (1,490 cases per year).

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



- Female age-standardised breast cancer incidence rates increased between 2012-2016 and 2017-2021 by 1.7% from 161.2 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 2002 to 2021



INCIDENCE TRENDS BY AGE

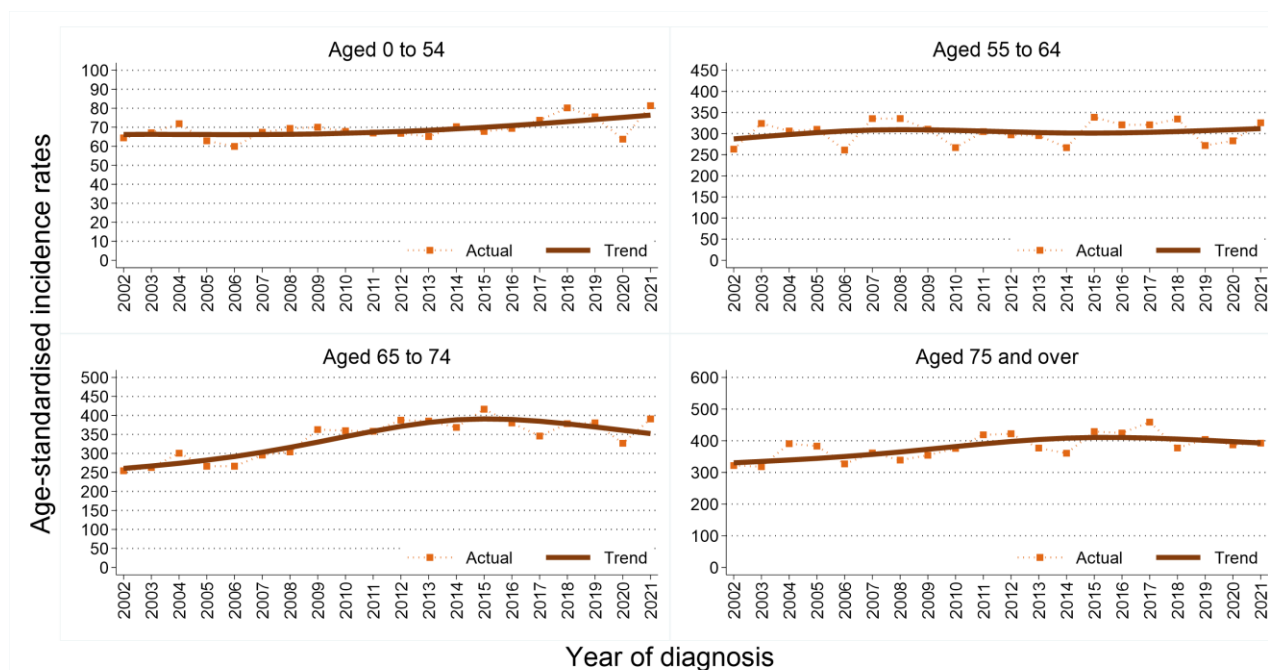
- Between 2012-2016 and 2017-2021 the number of cases of breast cancer among
 - Females aged 0 to 54 increased by 10.4%.
 - Females aged 55 to 64 increased by 15.1%.
 - Females aged 65 to 74 increased by 0.1%.
 - Females aged 75 and over increased by 9.6%.

Table 1: Average number of cases per year of female breast cancer by period of diagnosis in 2012-2021

Age at diagnosis	Female	
	2012-2016	2017-2021
All ages	1,369	1,490
0 to 54	428	473
55 to 64	311	358
65 to 74	323	323
75 and over	307	336

- Between 2012-2016 and 2017-2021 age-standardised incidence rates of breast cancer among
 - Females aged 0 to 54 increased by 10.3%.
 - 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 2002 to 2021 by age group



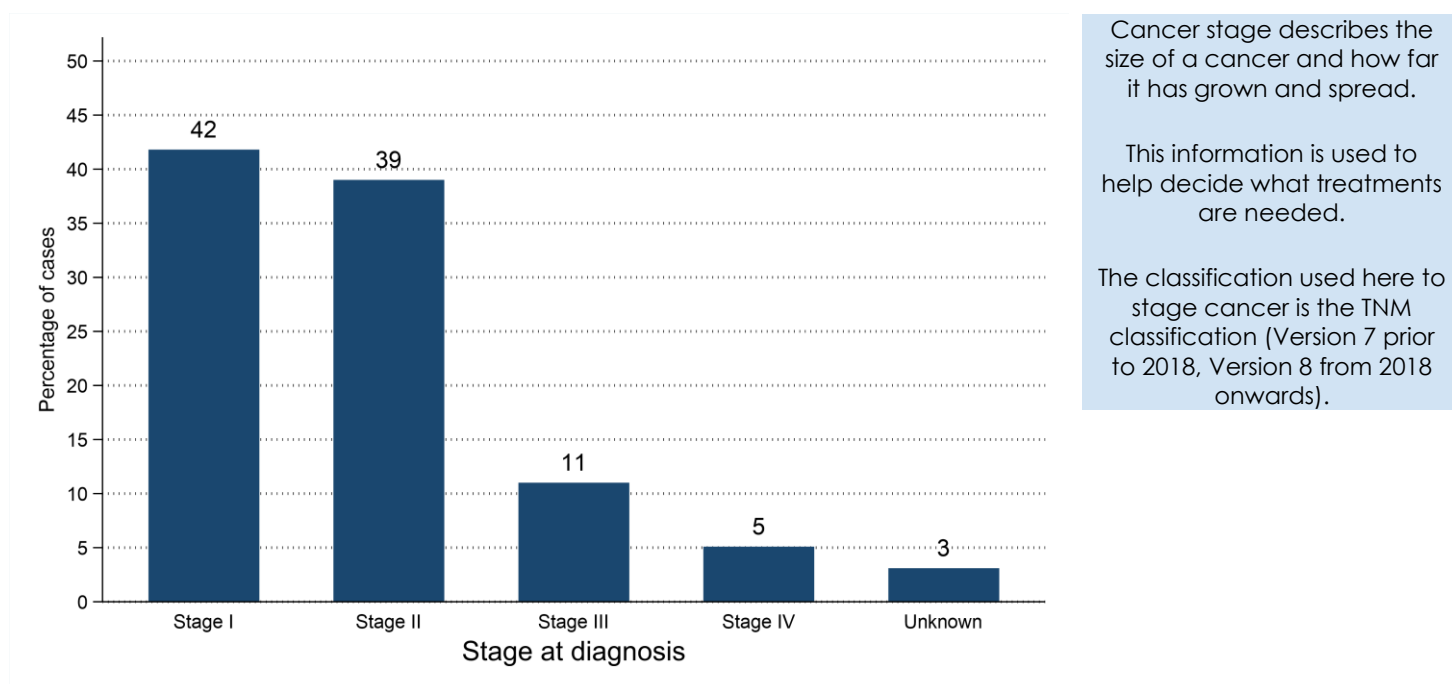
INCIDENCE BY STAGE AT DIAGNOSIS

- During 2017-2021 96.9% of female breast cancer cases had a stage assigned.
- 41.8% of female breast cancer cases were diagnosed at Stage I. (43.2% of staged cases)
- 5.1% of female breast cancer cases were diagnosed at Stage IV. (5.2% of staged cases)

Table 2: Number of cases of female breast cancer diagnosed in 2017-2021 by stage at diagnosis

Stage at diagnosis	Female	
	Total cases in period	Average cases per year
All stages	7,451	1,490
Stage I	3,117	623
Stage II	2,906	581
Stage III	817	163
Stage IV	377	75
Unknown	234	47

Figure 8: Proportion of cases of female breast cancer diagnosed in 2017-2021 by stage at diagnosis



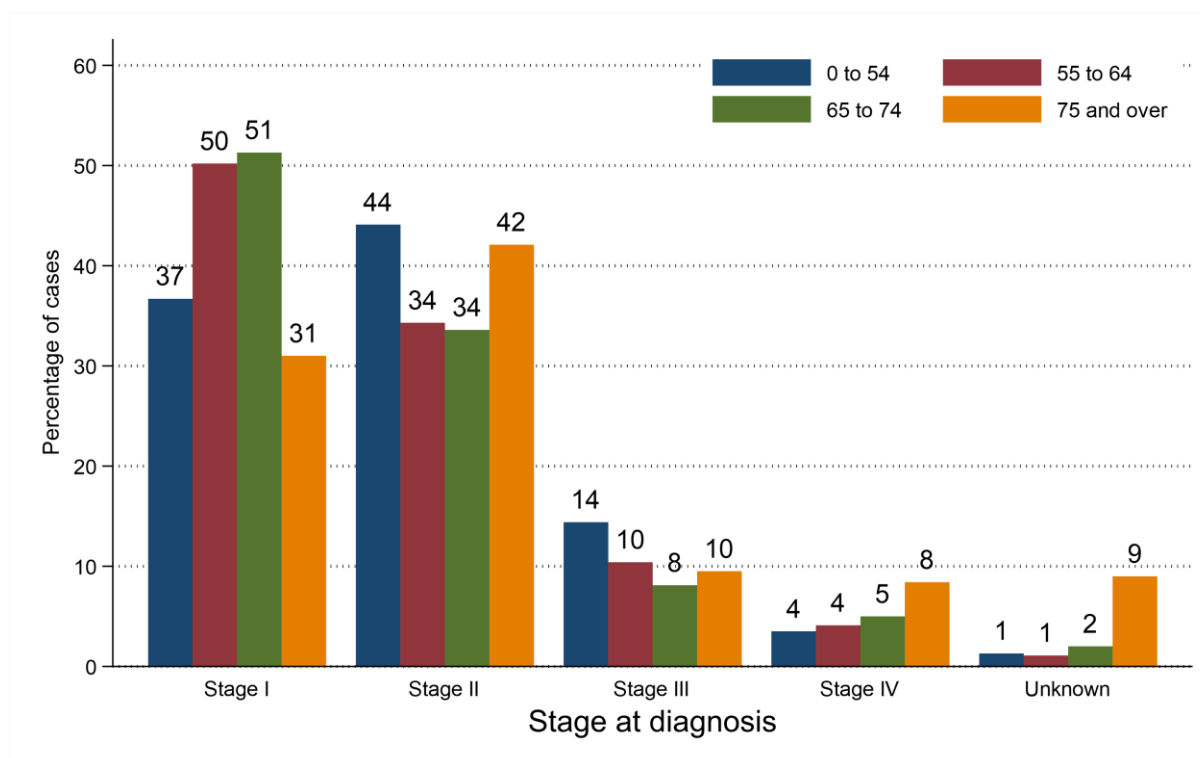
INCIDENCE BY STAGE AND AGE AT DIAGNOSIS

- During 2017-2021 91.0% of female breast cancer cases among those aged 75 and over had a stage assigned compared to 98.7% of those aged 0 to 54.
- 31.0% of female breast cancer cases among those aged 75 and over were diagnosed at Stage I (34.1% of staged cases) compared to 36.7% of those aged 0 to 54 (37.2% of staged cases).
- 8.4% of female breast cancer cases among those aged 75 and over were diagnosed at Stage IV (9.2% of staged cases) compared to 3.5% of those aged 0 to 54 (3.5% of staged cases).

Table 3: Average number of cases of female breast cancer diagnosed per year in 2017-2021 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	1,490	473	358	323	336
Stage I	623	174	180	166	104
Stage II	581	208	123	108	142
Stage III	163	68	37	26	32
Stage IV	75	16	15	16	28
Unknown	47	6	4	7	30

Figure 9: Proportion of cases of female breast cancer diagnosed in 2017-2021 by stage and age at diagnosis



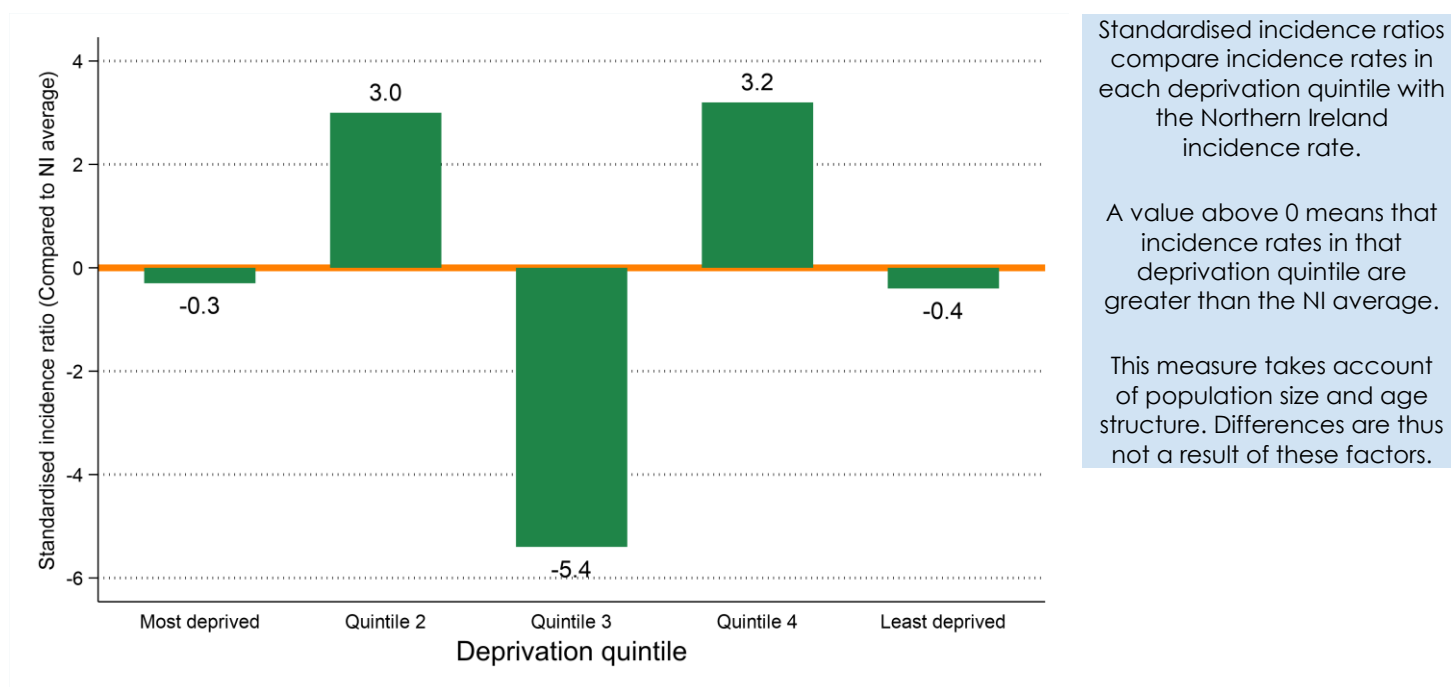
INCIDENCE BY DEPRIVATION

- The number of cases of female breast 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 did not vary significantly from the NI average.
 - in the least socio-economically deprived areas did not vary significantly from the NI average.

Table 4: Number of cases of female breast cancer diagnosed in 2017-2021 by deprivation quintile

Deprivation quintile	Female	
	Total cases in period	Average cases per year
Northern Ireland	7,451	1,490
Most deprived	1,262	252
Quintile 2	1,537	307
Quintile 3	1,463	293
Quintile 4	1,630	326
Least deprived	1,559	312
Unknown	0	0

Figure 10: Standardised incidence ratio comparing deprivation quintile to Northern Ireland for female breast cancer diagnosed in 2017-2021



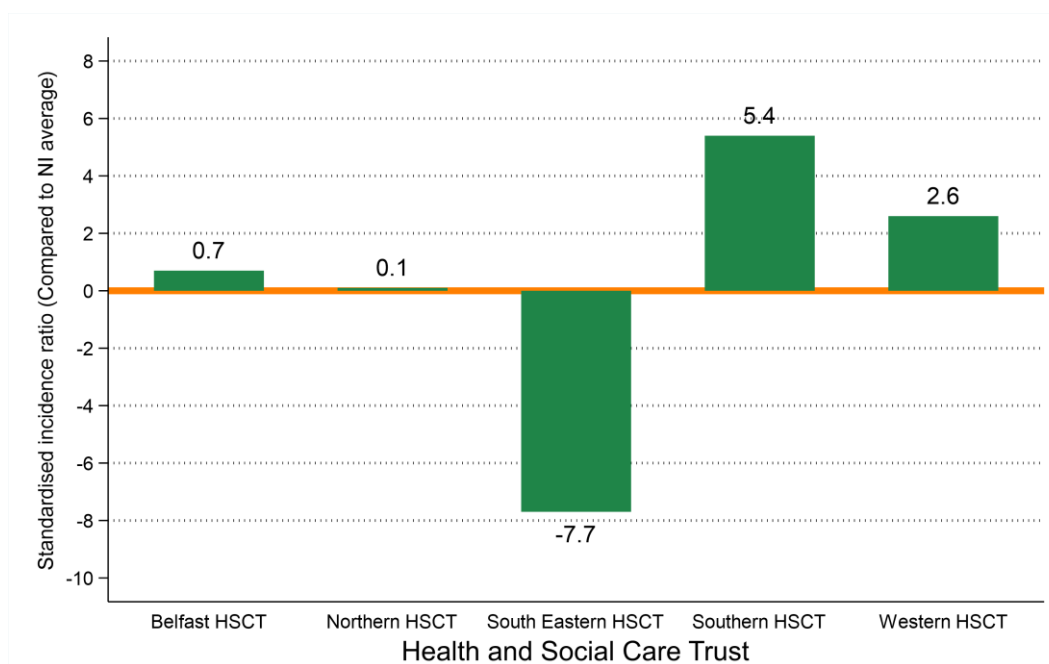
INCIDENCE BY HEALTH AND SOCIAL CARE TRUST

- The number of cases of female breast 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 were 7.7% lower than the NI average.
 - in Southern HSCT were 5.4% higher than the NI average.
 - in Western HSCT did not vary significantly from the NI average.

Table 5: Number of cases of female breast cancer diagnosed in 2017-2021 by Health and Social Care Trust

Health and Social Care Trust	Female	
	Total cases in period	Average cases per year
Northern Ireland	7,451	1,490
Belfast HSCT	1,385	277
Northern HSCT	1,958	392
South Eastern HSCT	1,426	285
Southern HSCT	1,490	298
Western HSCT	1,192	238
Unknown	0	0

Figure 11: Standardised incidence ratio comparing Health and Social Care Trust to Northern Ireland for female breast cancer diagnosed in 2017-2021



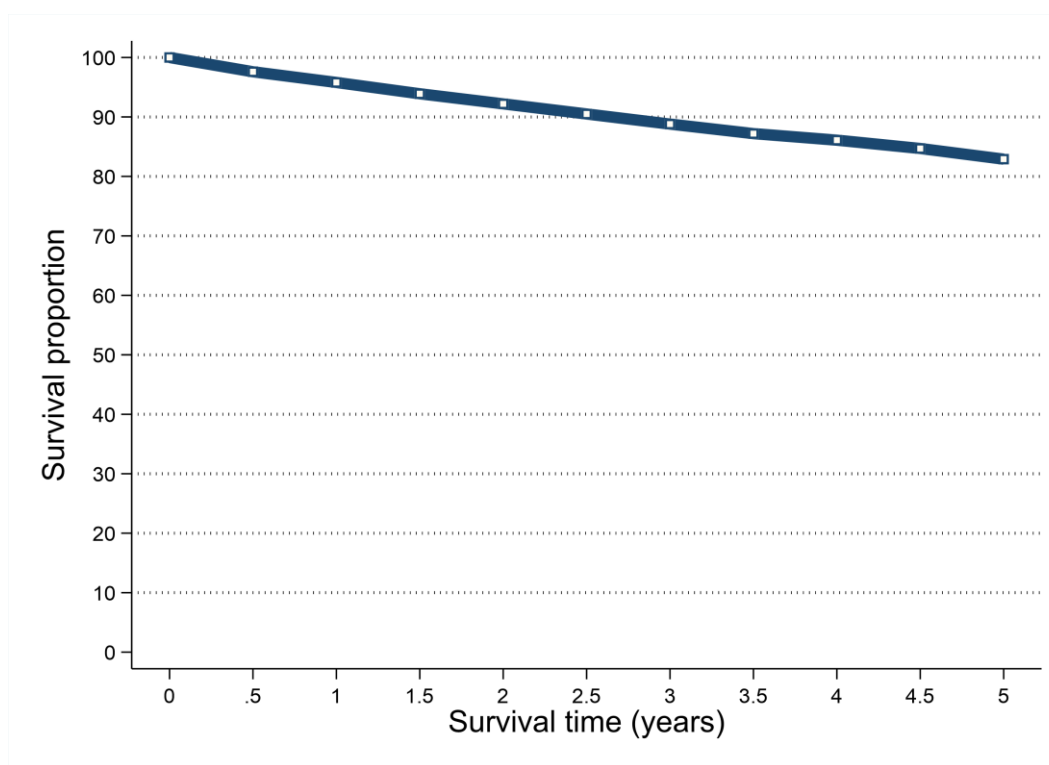
SURVIVAL

- 94.7% of patients were alive one year and 77.6% were alive five years from a breast cancer diagnosis in 2012-2016. (observed survival)
- Age-standardised net survival (ASNS), which removes the effect of deaths from causes unrelated to cancer, was 95.8% one year and 82.9% five years from a breast cancer diagnosis in 2012-2016.

Table 6: Survival from female breast cancer for patients diagnosed in 2012-2016

Time since diagnosis	Female	
	Observed survival	Age-standardised net survival
6 months	97.1%	97.6%
One year	94.7%	95.8%
Two years	89.8%	92.2%
Five years	77.6%	82.9%

Figure 12: Age-standardised net survival from female breast 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.

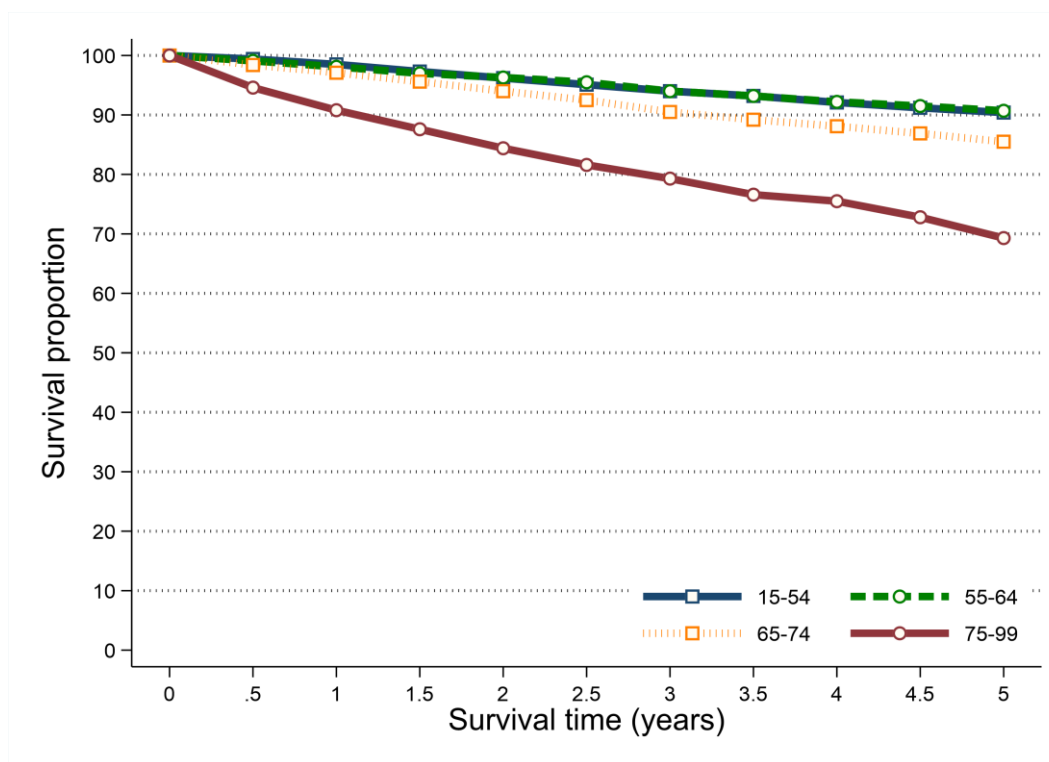
SURVIVAL BY AGE

- Survival from female breast 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 90.7% among patients aged 55 to 64 at diagnosis to 69.3% among those aged 75 to 99.

Table 7: Net survival from female breast cancer for patients diagnosed in 2012-2016 by age at diagnosis

Age group	Female	
	One-year	Five-years
15 to 54	98.5%	90.4%
55 to 64	98.1%	90.7%
65 to 74	97.1%	85.5%
75 to 99	90.8%	69.3%

Figure 13: Net survival from female breast cancer for patients diagnosed in 2012-2016 by age at diagnosis

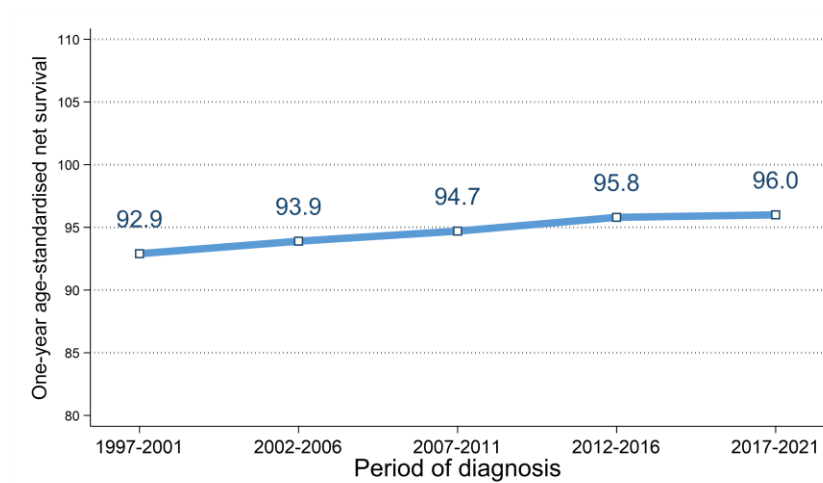


SURVIVAL TRENDS

ONE-YEAR NET SURVIVAL

- Between 2012-2016 and 2017-2021 there was no significant change in one-year survival (ASNS) from breast cancer among females.
- Compared to 1997-2001 one-year survival (ASNS) from breast cancer among females in 2017-2021 increased significantly from 92.9% to 96.0%.

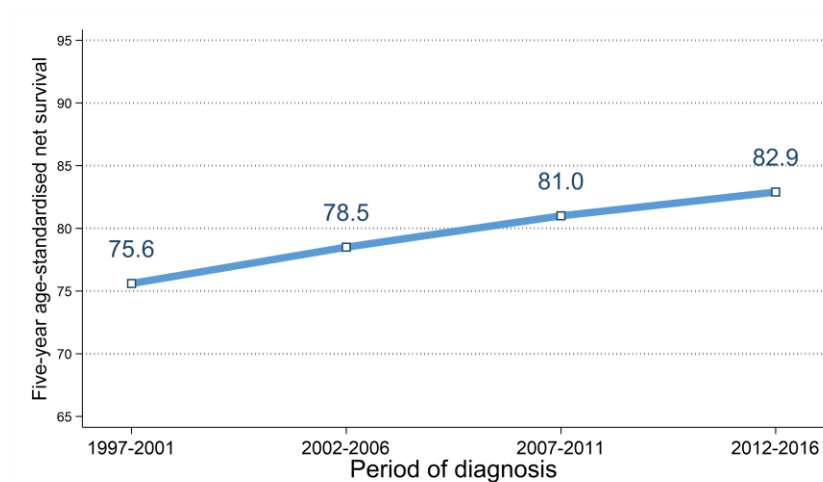
Figure 14: Trends in one-year age-standardised net survival from female breast cancer in 1997-2021



FIVE-YEAR NET SURVIVAL

- Between 2007-2011 and 2012-2016 there was no significant change in five-year survival (ASNS) from breast cancer among females.
- Compared to 1997-2001 five-year survival (ASNS) from breast cancer among females in 2012-2016 increased significantly from 75.6% to 82.9%.

Figure 15: Trends in five-year age-standardised net survival from female breast cancer in 1997-2016



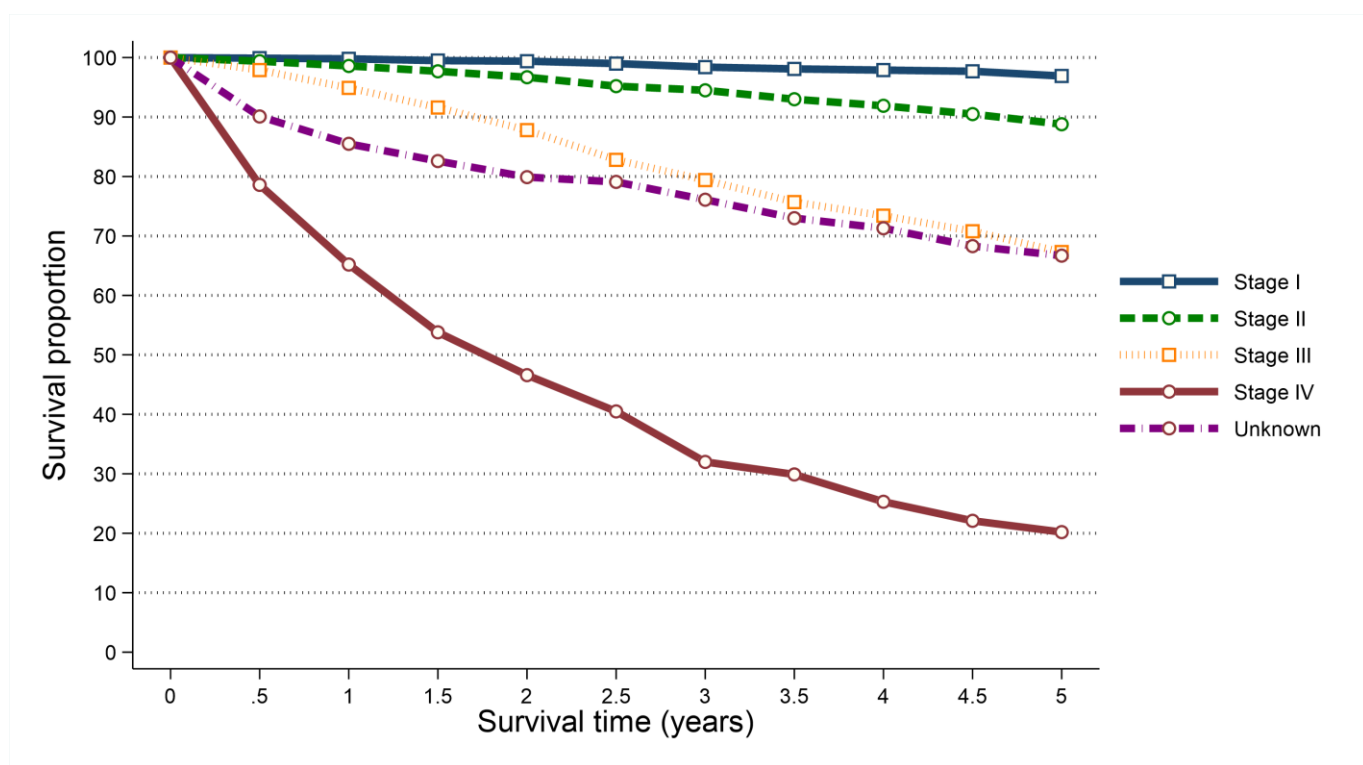
SURVIVAL BY STAGE

- Survival from female breast 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 96.9% among patients diagnosed at Stage I to 20.2% among those diagnosed at Stage IV.

Table 8: Age-standardised net survival from female breast cancer for patients diagnosed in 2012-2016 by stage at diagnosis

Stage at diagnosis	Female	
	One-year	Five-years
Stage I	99.8%	96.9%
Stage II	98.6%	88.8%
Stage III	94.9%	67.3%
Stage IV	65.2%	20.2%
Unknown	85.5%	66.7%

Figure 16: Age-standardised net survival from female breast cancer for patients diagnosed in 2012-2016 by stage at diagnosis



PREVALENCE

- At the end of 2021, there were 17,663 females living with breast cancer who had been diagnosed with the disease during 1997-2021.
- Of these 8.5% had been diagnosed in the previous year (one-year prevalence) and 61.4% in the previous 10 years (ten-year prevalence).
- 29.2% of female breast cancer survivors were aged 75 and over at the end of 2021.

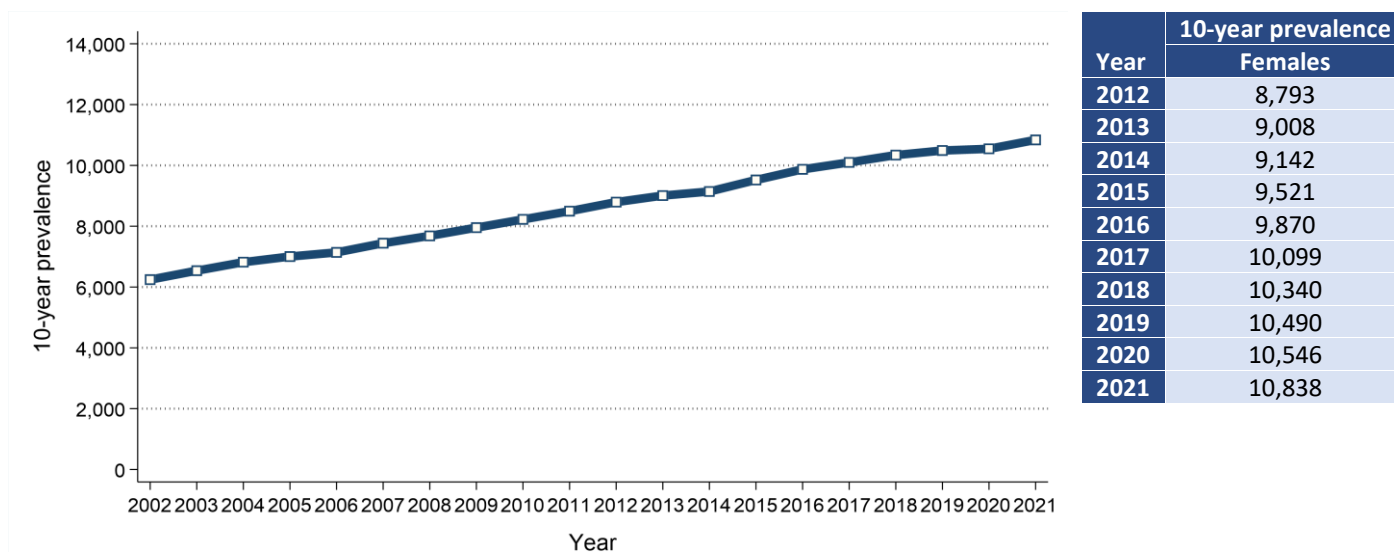
Table 9: 25-year prevalence of female breast cancer by age at end of 2021

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 ages	17,663	1,508	4,793	4,537	6,825
0 to 74	12,503	1,213	3,719	3,311	4,260
75 and over	5,160	295	1,074	1,226	2,565

PREVALENCE TRENDS

- 10-year prevalence of breast cancer among females increased between 2016 and 2021 by 9.8% from 9,870 survivors to 10,838 survivors.

Figure 17: Trends in 10-year prevalence of female breast cancer in 2002-2021



MORTALITY

- There were 1,561 deaths from female breast cancer during 2017-2021 in Northern Ireland. On average this was 312 deaths per year.
- Breast cancer deaths made up 14.6% of all female cancer deaths.
- The median age of females who died from breast cancer during 2017-2021 was 74 years.
- The risk of dying from breast cancer varied by age, with 48.0% of women who died from breast cancer aged 75 and over at death.
- In contrast, 15.8% of women who died from breast cancer were aged 0 to 54 at death.

Figure 18: Average number of deaths from female breast cancer per year in 2017-2021 by age at death

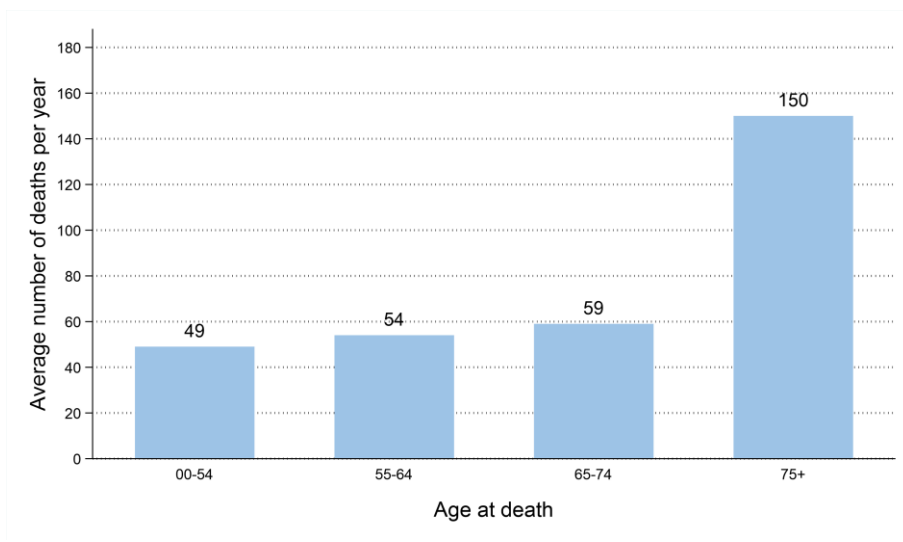
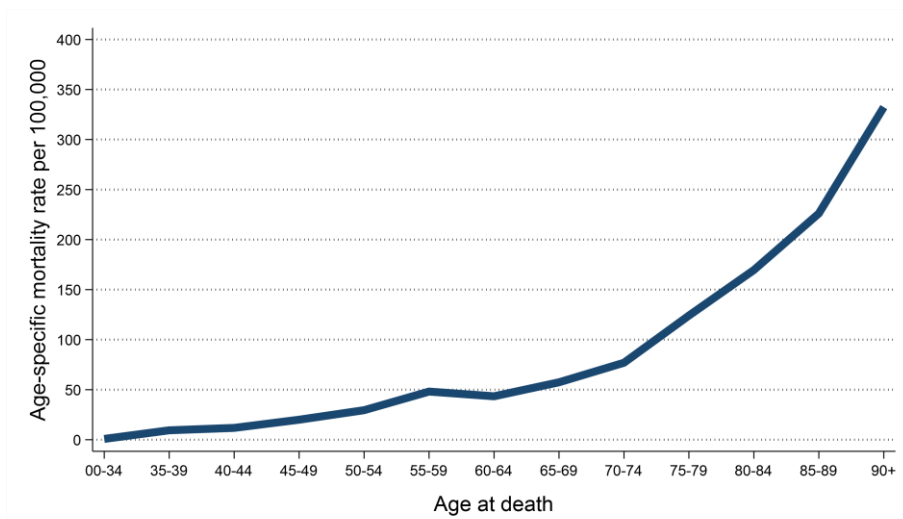


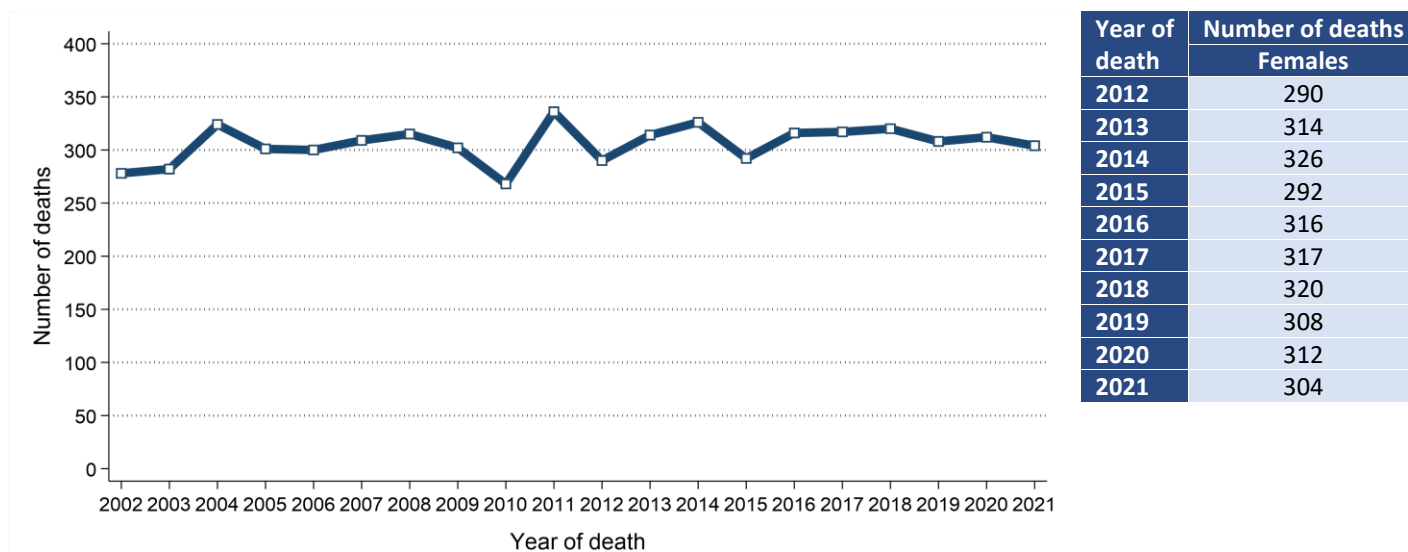
Figure 19: Age-specific mortality rates of female breast cancer in 2017-2021



MORTALITY TRENDS

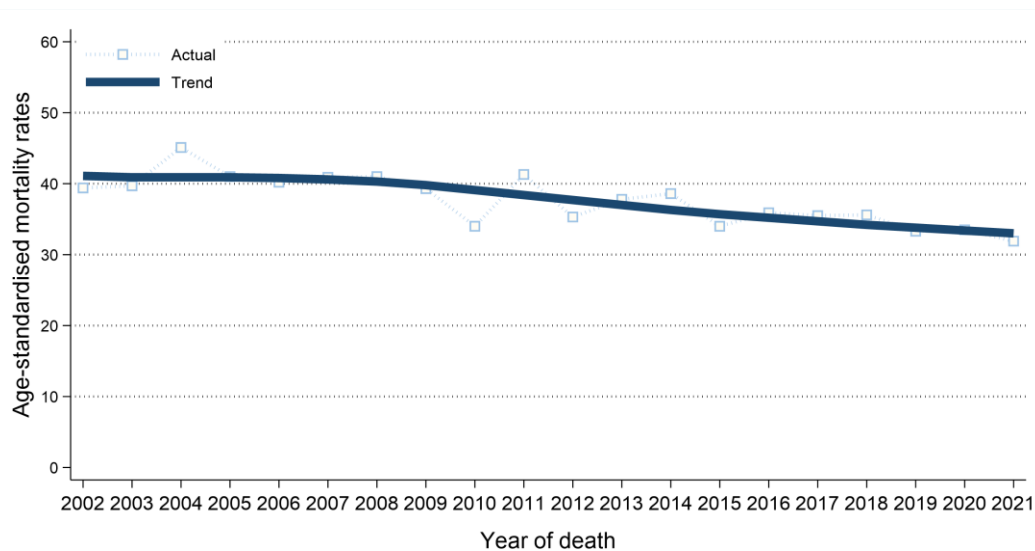
- The number of deaths from breast cancer among females increased between 2012-2016 and 2017-2021 by 1.5% from 1,538 deaths (308 deaths per year) to 1,561 deaths (312 deaths per year).

Figure 20: Trends in the number of deaths from female breast cancer from 2002 to 2021



- Female age-standardised breast cancer mortality rates decreased between 2012-2016 and 2017-2021 by 6.3% from 36.3 to 34.0 deaths per 100,000 females. This change was not statistically significant.

Figure 21: Trends in mortality rates of female breast 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. 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 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.