Prostate cancer

1993-2022

(ICD10 codes: C61)

Northern Ireland Cancer Registry

Northern Ireland Cancer Registry, 2025

An official statistics publication

ABOUT THIS REPORT

Contents

This report includes information on incidence of prostate 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 2025. Prostate 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

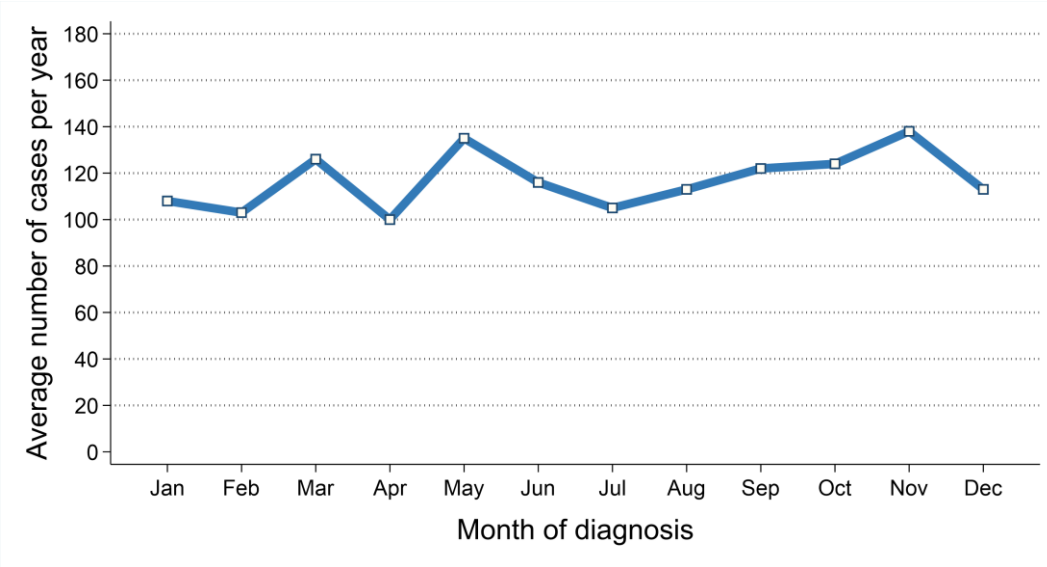
The Northern Ireland Cancer Registry (NICR) uses data provided by patients and collected by the health service as part of their care and support.

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

INCIDENCE

- There were 7,009 cases of prostate cancer diagnosed during 2018-2022 in Northern Ireland. On average this was 1,402 cases per year.
- The most common diagnosis month during 2018-2022 was November with 138 cases per year.

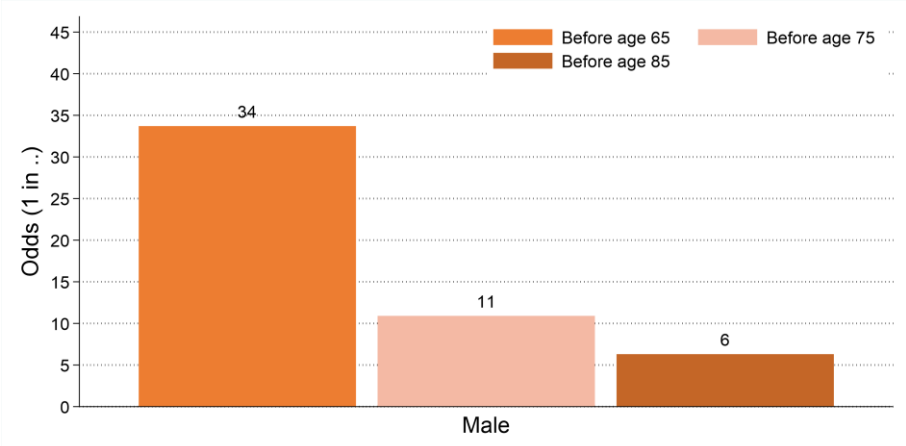
Figure 1: Average number of cases of prostate cancer per year in 2018-2022 by month of diagnosis



Month of diagnosis	Average number of cases per year
	Males
January	108
February	103
March	126
April	100
May	135
June	116
July	105
August	113
September	122
October	124
November	138
December	113

- Prostate cancer made up 26.6% of all male cancer cases (excluding non-melanoma skin cancer).
- The prostate cancer incidence rate was 150.0 cases per 100,000 males.
- The odds of developing prostate cancer before age 85 was 1 in 6.

Figure 2: Odds of developing prostate cancer in 2018-2022



INCIDENCE BY AGE

- The median age of males diagnosed with prostate cancer during 2018-2022 was 71 years.
- The risk of being diagnosed with prostate cancer varied by age, with 35.0% of men diagnosed with prostate cancer aged 75 and over at diagnosis.
- In contrast, 3.6% of men diagnosed with prostate cancer were aged 0 to 54 at diagnosis.

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

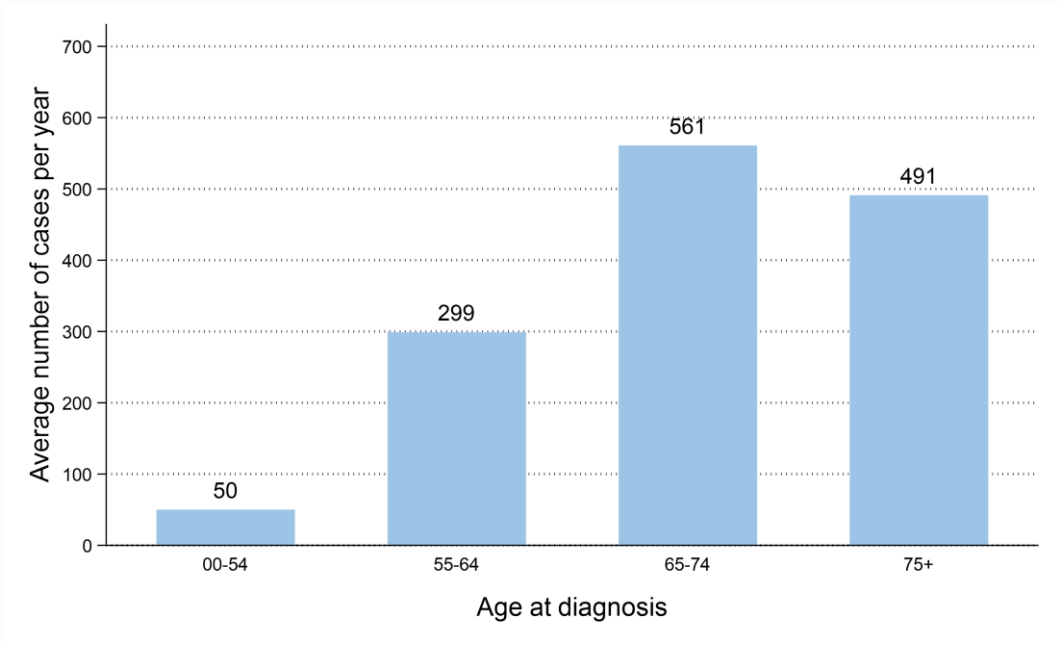
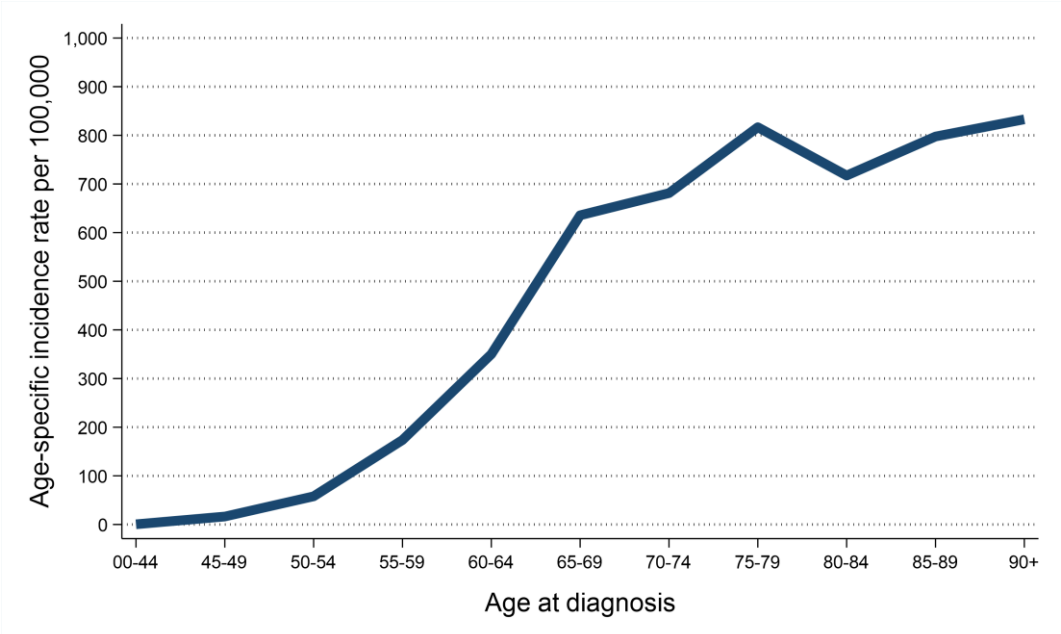


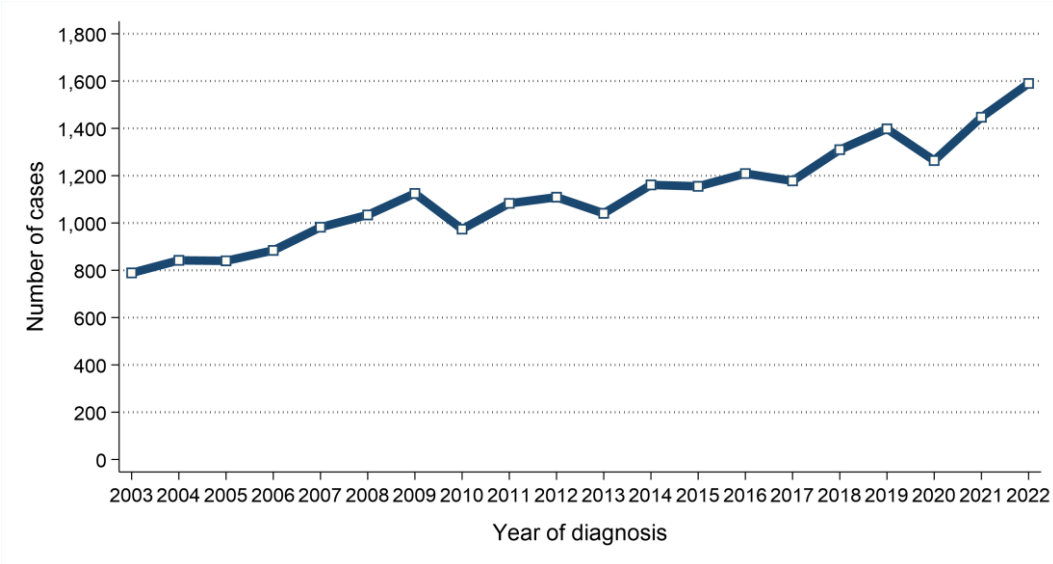
Figure 4: Age-specific incidence rates of prostate cancer in 2018-2022



INCIDENCE TRENDS

- The number of cases of prostate cancer among males increased between 2013-2017 and 2018-2022 by 22.0% from 5,744 cases (1,149 cases per year) to 7,009 cases (1,402 cases per year).

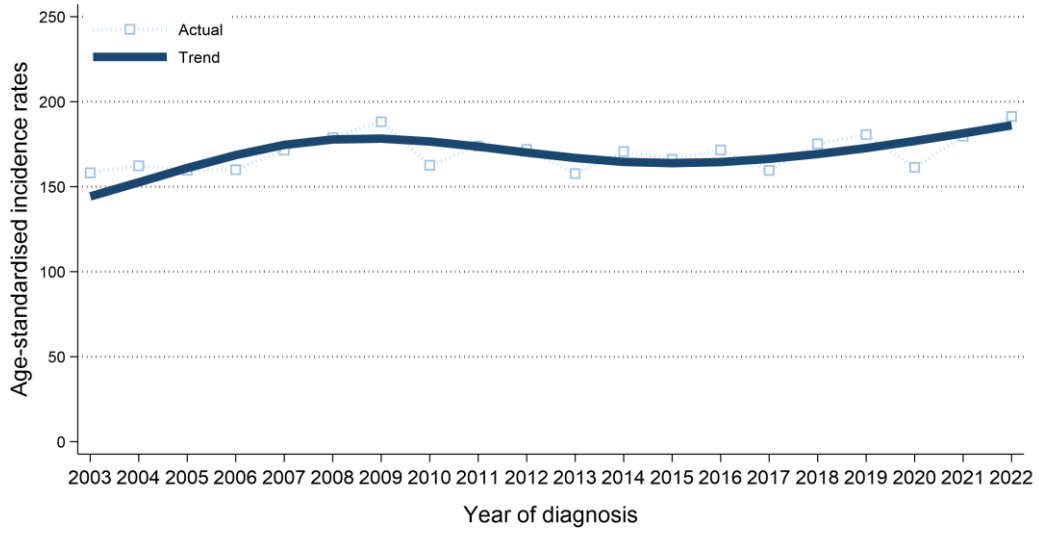
Figure 5: Trends in number of cases of prostate cancer diagnosed from 2003 to 2022



Year of diagnosis	Number of cases
	Males
2013	1,041
2014	1,161
2015	1,155
2016	1,209
2017	1,178
2018	1,310
2019	1,398
2020	1,264
2021	1,447
2022	1,590

- Male age-standardised prostate cancer incidence rates increased between 2013-2017 and 2018-2022 by 7.6% from 165.2 to 177.8 cases per 100,000 males. This change was statistically significant.

Figure 6: Trends in incidence rates of prostate 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

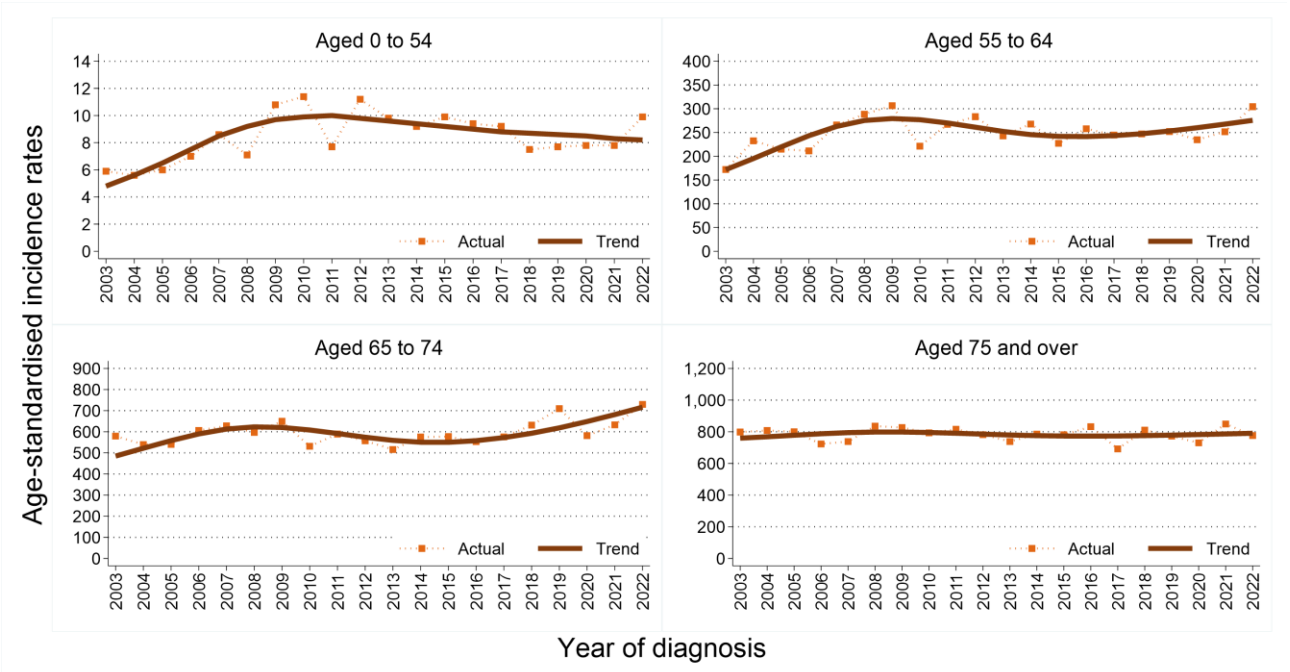
- Between 2013-2017 and 2018-2022 the number of cases of prostate cancer among
  - Males aged 0 to 54 decreased by 14.6%.
  - Males aged 55 to 64 increased by 17.0%.
  - Males aged 65 to 74 increased by 28.7%.
  - Males aged 75 and over increased by 23.4%.

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

Age at diagnosis	Male	
	2013-2017	2018-2022
All ages	1,149	1,402
	.	.
0 to 54	59	50
55 to 64	256	299
65 to 74	436	561
75 and over	398	491

- Between 2013-2017 and 2018-2022 age-standardised incidence rates of prostate cancer among
  - Males aged 0 to 54 did not change significantly.
  - Males aged 55 to 64 did not change significantly.
  - Males aged 65 to 74 increased by 17.4%.
  - Males aged 75 and over did not change significantly.

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



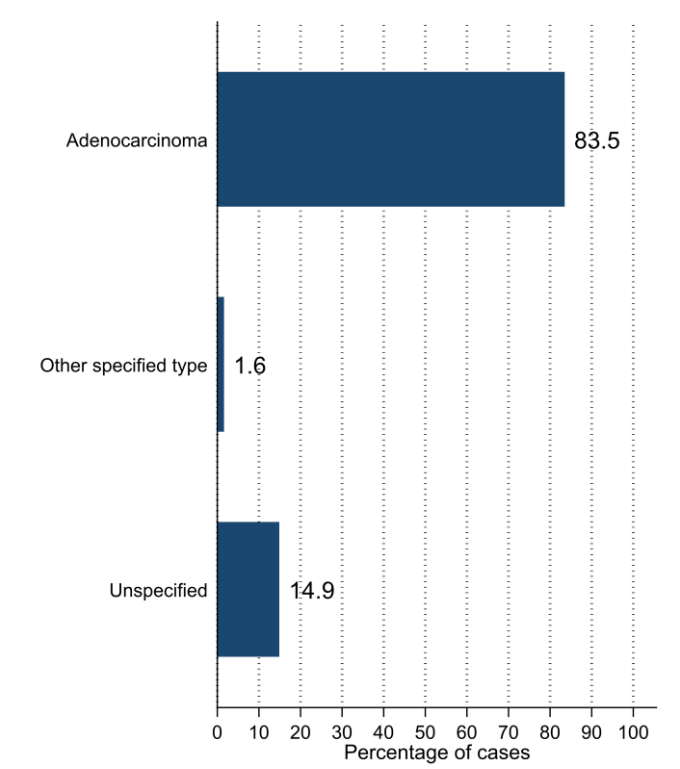
INCIDENCE BY HISTOLOGICAL TYPE

- During 2018-2022 85.1% of prostate cancer cases had a histological type specified.
- Of the 1,047 cases with an unspecified type 97.5% were not microscopically verified.
- The most common prostate cancer histological types were adenocarcinoma (83.5%) and another specified type (1.6%).

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

Histological type	Male	
	Total cases in period	Average cases per year
All types	**7,009**	**1,402**
	.	.
Adenocarcinoma	5,851	1,170
Other specified type	111	22
Unspecified	1,047	209

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



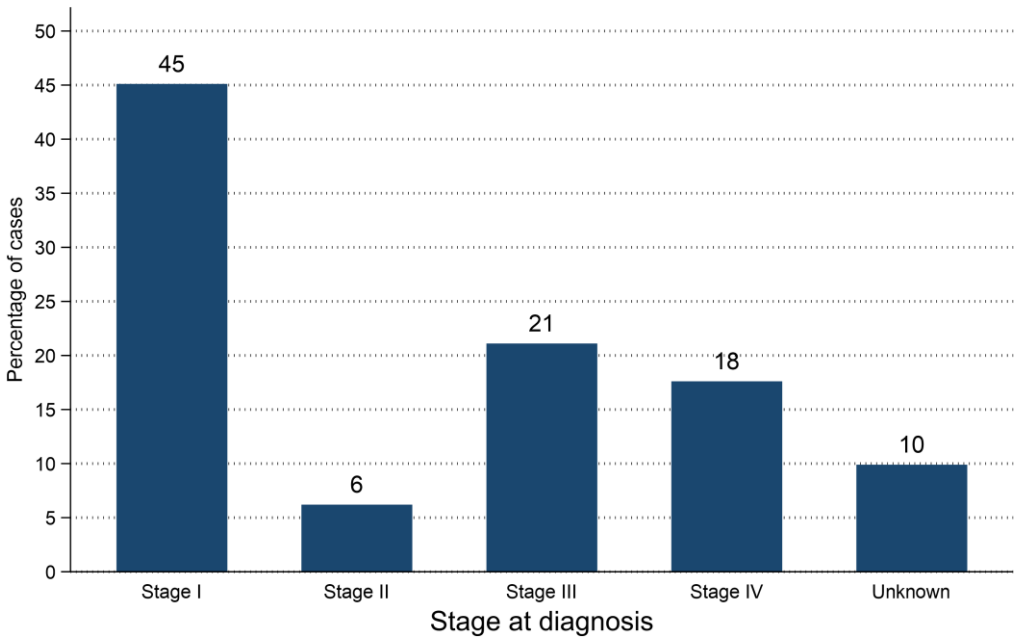
INCIDENCE BY STAGE AT DIAGNOSIS

- During 2018-2022 90.1% of prostate cancer cases had a stage assigned.
- 45.1% of prostate cancer cases were diagnosed at Stage I. (50.1% of staged cases)
- 17.6% of prostate cancer cases were diagnosed at Stage IV. (19.6% of staged cases)

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

Stage at diagnosis	Male	
	Total cases in period	Average cases per year
All stages	**7,009**	**1,402**
	.	.
Stage I	3,161	632
Stage II	436	87
Stage III	1,480	296
Stage IV	1,236	247
Unknown	696	139

Figure 9: Proportion of cases of prostate 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).

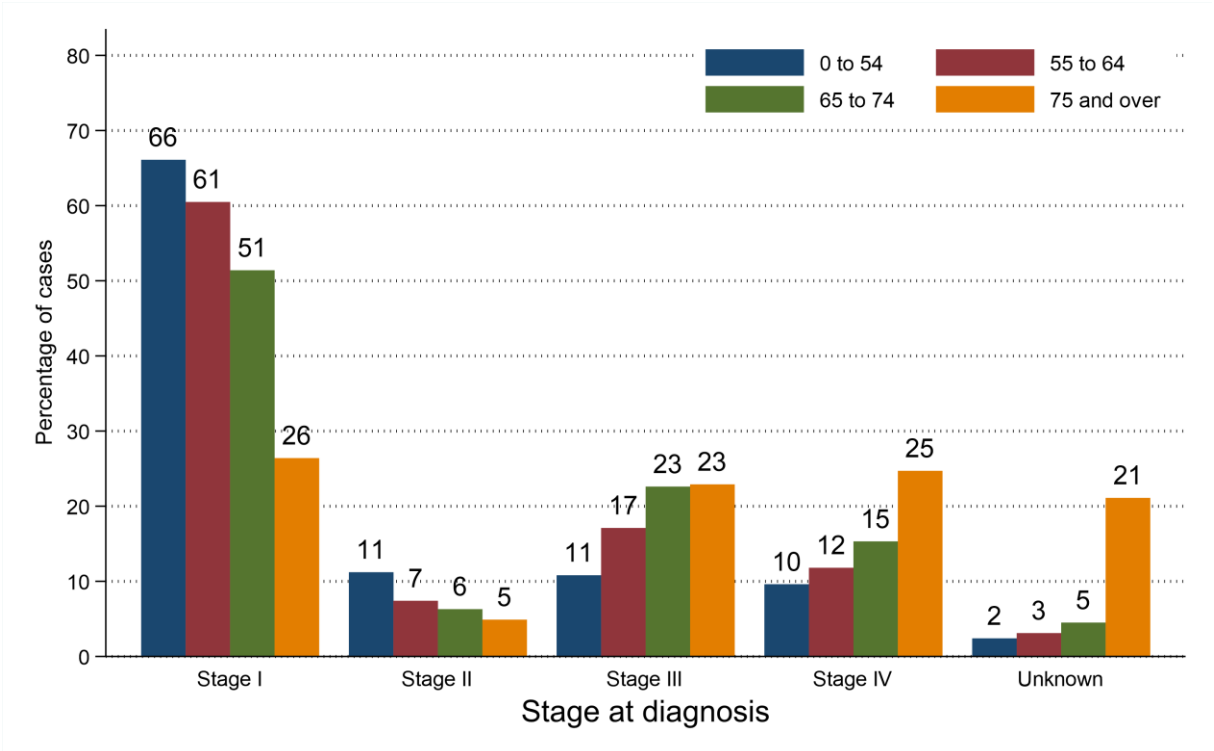
INCIDENCE BY STAGE AND AGE AT DIAGNOSIS

- During 2018-2022 78.9% of prostate cancer cases among those aged 75 and over had a stage assigned compared to 97.6% of those aged 0 to 54.
- 26.4% of prostate cancer cases among those aged 75 and over were diagnosed at Stage I (33.5% of staged cases) compared to 66.1% of those aged 0 to 54 (67.8% of staged cases).
- 24.7% of prostate cancer cases among those aged 75 and over were diagnosed at Stage IV (31.3% of staged cases) compared to 9.6% of those aged 0 to 54 (9.8% of staged cases).

Table 4: Average number of cases of prostate 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	**1,402**	**50**	**299**	**561**	**491**
	.	.	.	.	.
Stage I	632	33	181	288	130
Stage II	87	6	22	35	24
Stage III	296	5	51	127	112
Stage IV	247	5	35	86	121
Unknown	139	1	9	25	104

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



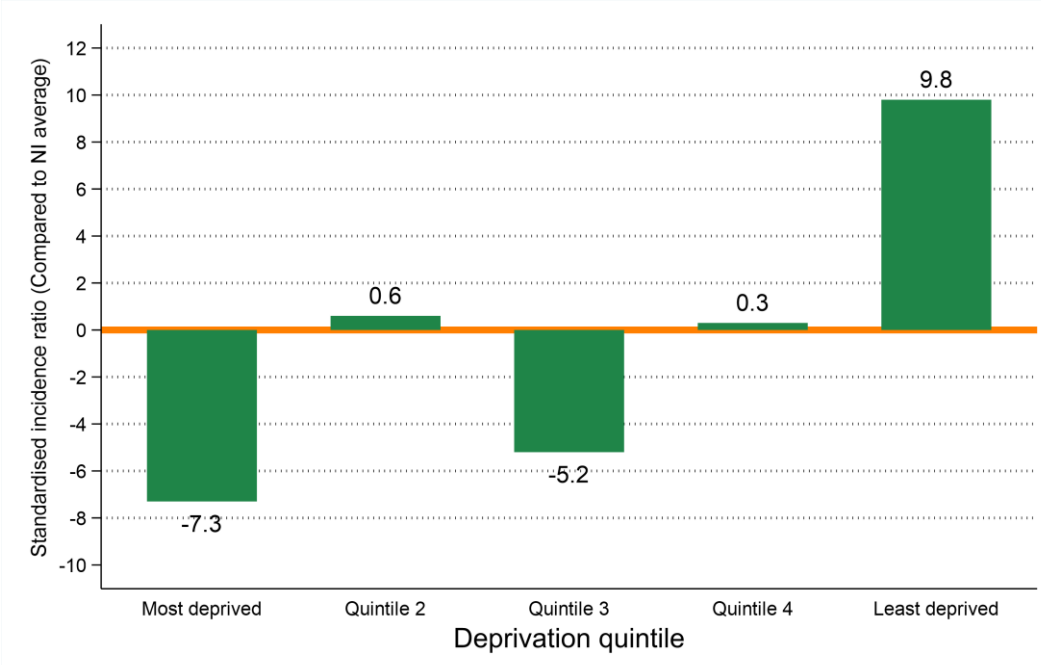
INCIDENCE BY DEPRIVATION

- The number of cases of prostate 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 were 7.3% lower than the NI average.
  - in the least socio-economically deprived areas were 9.8% higher than the NI average.

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

Deprivation quintile	Male	
	Total cases in period	Average cases per year
Northern Ireland	**7,009**	**1,402**
	.	.
Most deprived	1,031	206
Quintile 2	1,396	279
Quintile 3	1,425	285
Quintile 4	1,515	303
Least deprived	1,641	328
Unknown	1	0

Figure 11: Standardised incidence ratio comparing deprivation quintile to Northern Ireland for prostate 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.

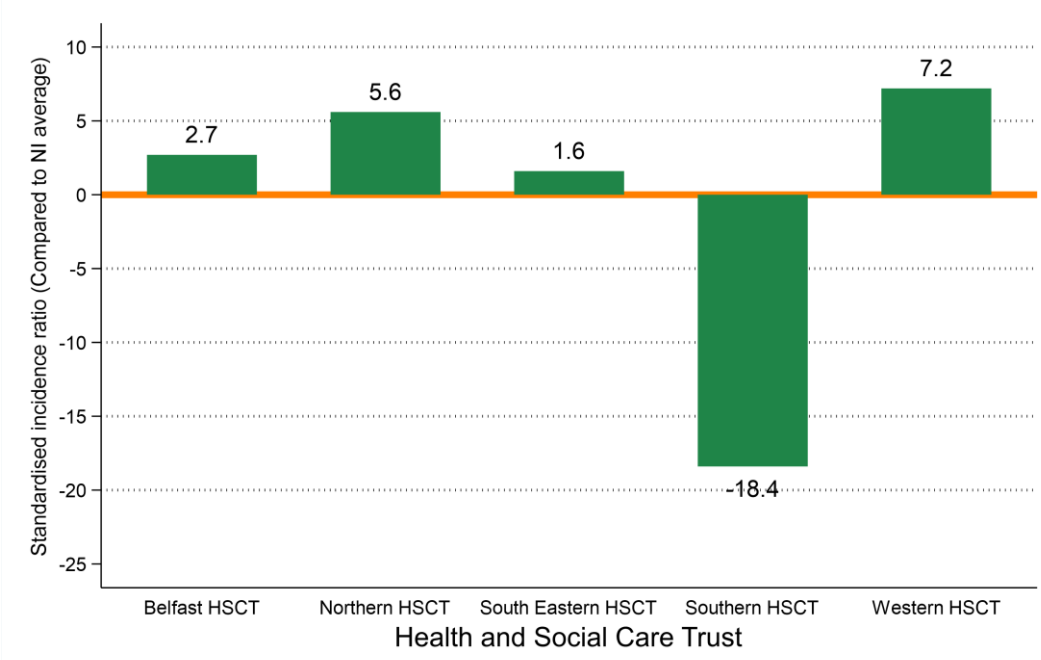
INCIDENCE BY HEALTH AND SOCIAL CARE TRUST

- The number of cases of prostate 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 were 5.6% higher than the NI average.
  - in South Eastern HSCT did not vary significantly from the NI average.
  - in Southern HSCT were 18.4% lower than the NI average.
  - in Western HSCT were 7.2% higher than the NI average.

Table 6: Number of cases of prostate cancer diagnosed in 2018-2022 by Health and Social Care Trust

Health and Social Care Trust	Male	
	Total cases in period	Average cases per year
Northern Ireland	**7,009**	**1,402**
	.	.
Belfast HSCT	1,215	243
Northern HSCT	1,981	396
South Eastern HSCT	1,523	305
Southern HSCT	1,080	216
Western HSCT	1,209	242
Unknown	1	0

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



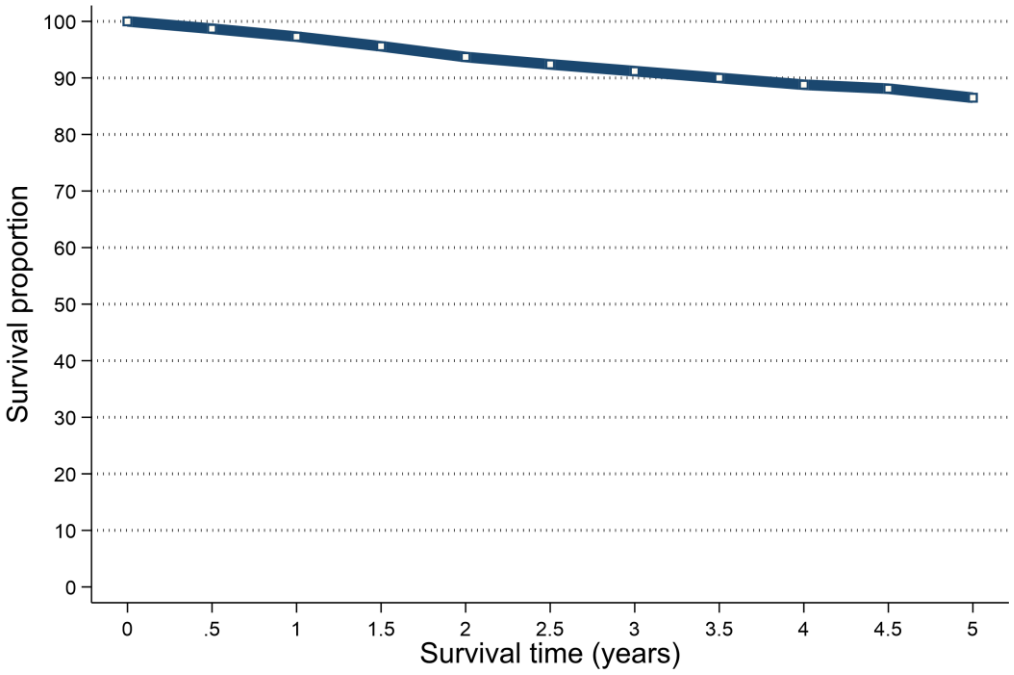
SURVIVAL

- 93.7% of patients were alive one year and 72.1% were alive five years from a prostate cancer diagnosis in 2013-2017. (observed survival)
- Age-standardised net survival (ASNS), which removes the effect of deaths from causes unrelated to cancer, was 97.3% one year and 86.5% five years from a prostate cancer diagnosis in 2013-2017.

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

Time since diagnosis	Male	
	Observed survival	Age-standardised net survival
6 months	96.9%	98.7%
One year	93.7%	97.3%
Two years	87.0%	93.7%
Five years	72.1%	86.5%

Figure 13: Age-standardised net survival from prostate 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.

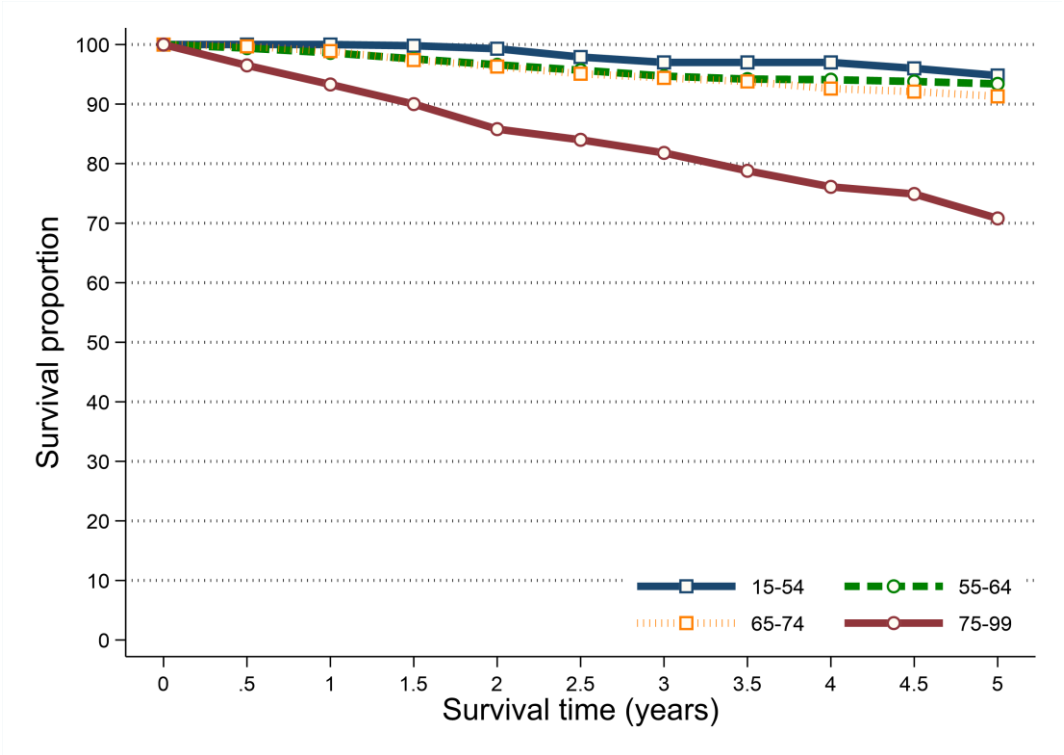
SURVIVAL BY AGE

- Survival from prostate 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 94.8% among patients aged 15 to 54 at diagnosis to 70.8% among those aged 75 to 99.

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

Age group	Male	
	One-year	Five-years
15 to 54	100.0%	94.8%
55 to 64	98.6%	93.4%
65 to 74	98.9%	91.3%
75 to 99	93.3%	70.8%

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

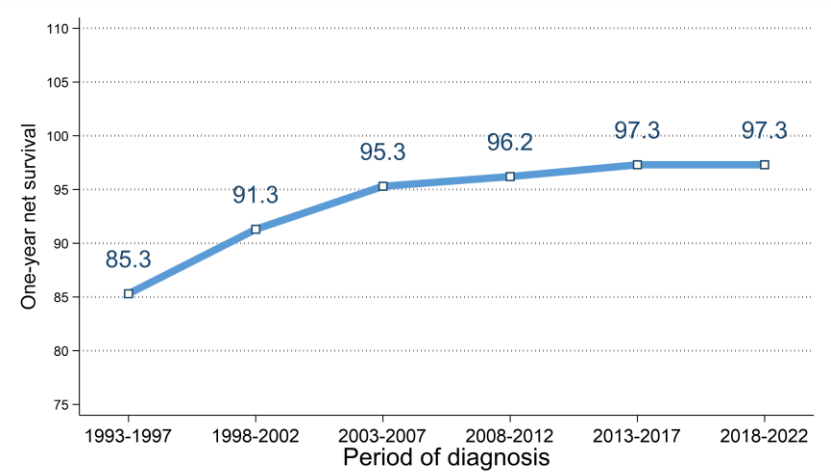


SURVIVAL TRENDS

ONE-YEAR NET SURVIVAL

- Between 2013-2017 and 2018-2022 there was no significant change in one-year survival (ASNS) from prostate cancer among males.
- Compared to 1993-1997 one-year survival (ASNS) from prostate cancer among males in 2018-2022 increased significantly from 85.3% to 97.3%.

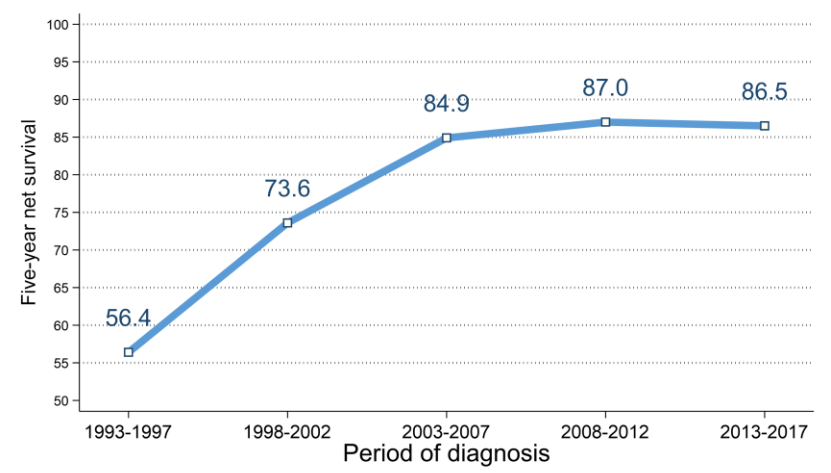
Figure 15: Trends in one-year age-standardised net survival from prostate cancer in 1993-2022



FIVE-YEAR NET SURVIVAL

- Between 2008-2012 and 2013-2017 there was no significant change in five-year survival (ASNS) from prostate cancer among males.
- Compared to 1993-1997 five-year survival (ASNS) from prostate cancer among males in 2013-2017 increased significantly from 56.4% to 86.5%.

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



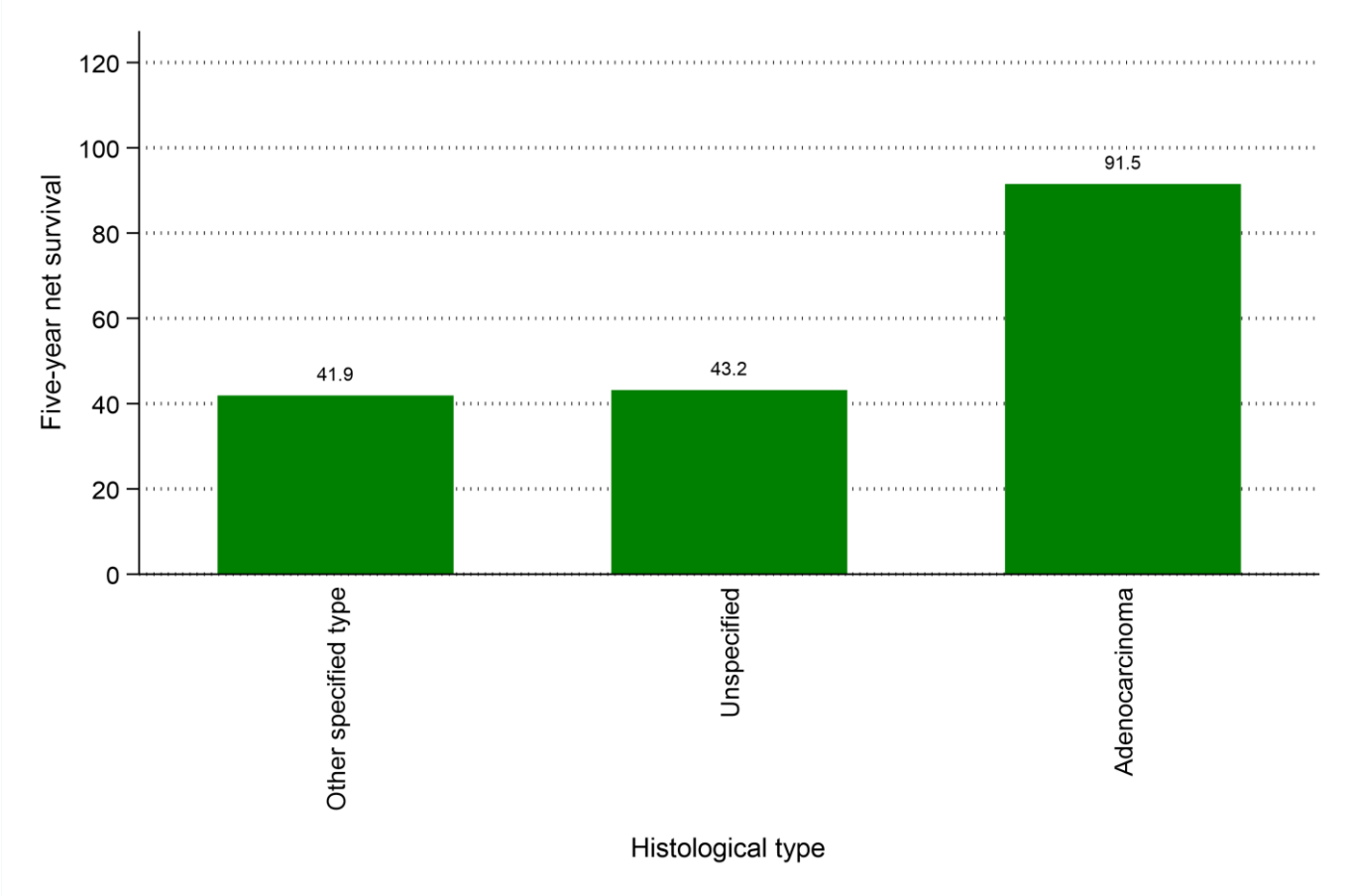
SURVIVAL BY HISTOLOGICAL TYPE

- Five-year survival (ASNS) for patients diagnosed in 2013-2017 ranged from 91.5% for adenocarcinoma to 41.9% for those with another specified type.

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

Histological type	Male	
	One-year	Five-years
Adenocarcinoma	99.5%	91.5%
Other specified type	70.0%	41.9%
Unspecified	74.9%	43.2%

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



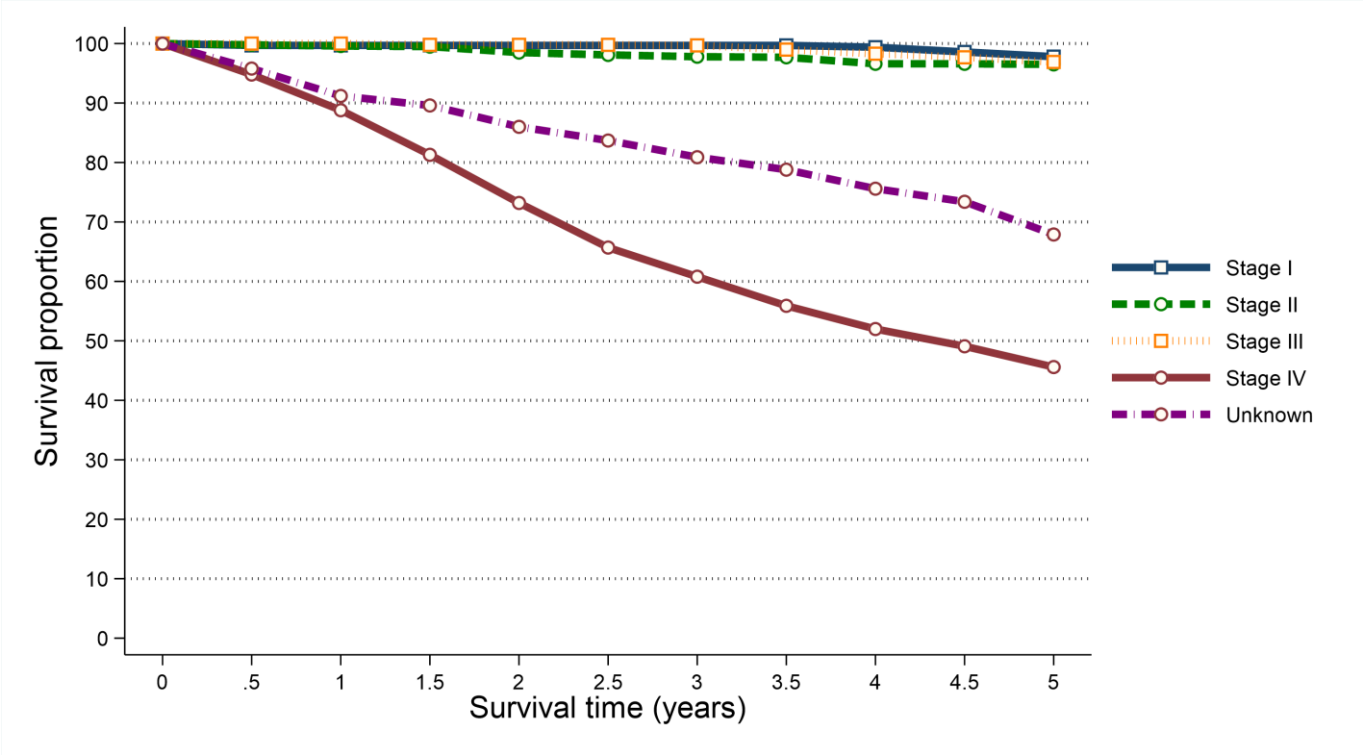
SURVIVAL BY STAGE

- Survival from prostate 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 97.8% among patients diagnosed at Stage I to 45.6% among those diagnosed at Stage IV.

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

Stage at diagnosis	Male	
	One-year	Five-years
Stage I	99.7%	97.8%
Stage II	99.6%	96.5%
Stage III	100.0%	96.9%
Stage IV	88.8%	45.6%
Unknown	91.2%	67.9%

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



PREVALENCE

- At the end of 2022, there were 13,469 males living with prostate cancer who had been diagnosed with the disease during 1998-2022.
- Of these 11.4% had been diagnosed in the previous year (one-year prevalence) and 71.2% in the previous 10 years (ten-year prevalence).
- 51.6% of prostate cancer survivors were aged 75 and over at the end of 2022.

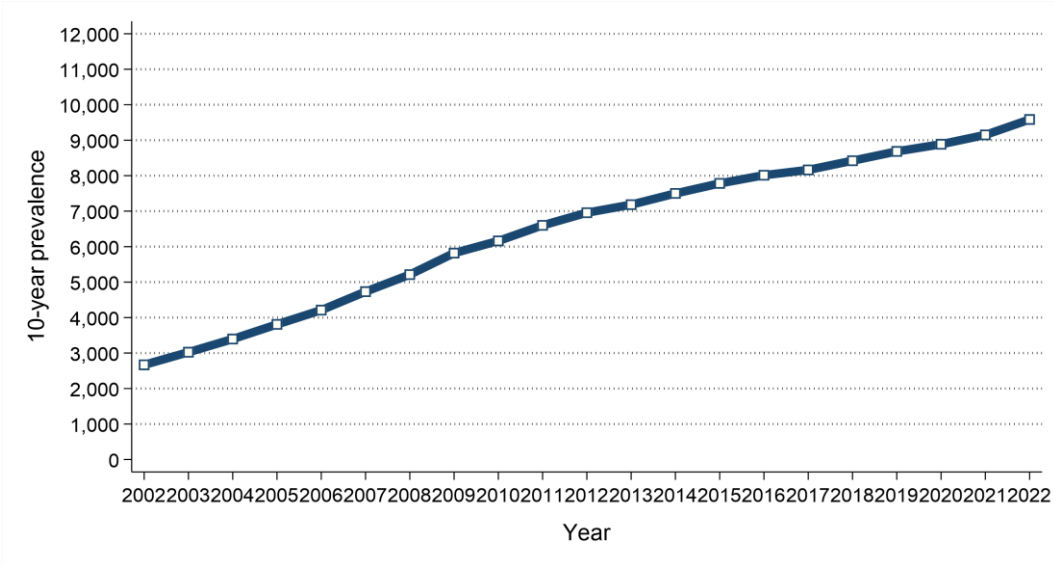
Table 11: 25-year prevalence of prostate cancer by age at end of 2022

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	13,469	1,534	4,455	3,595	3,885
0 to 74	6,515	1,026	2,562	1,797	1,130
75 and over	6,954	508	1,893	1,798	2,755

PREVALENCE TRENDS

- 10-year prevalence of prostate cancer among males increased between 2017 and 2022 by 17.4% from 8,163 survivors to 9,584 survivors.

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



Year	10-year prevalence Males
2013	7,184
2014	7,499
2015	7,783
2016	8,013
2017	8,163
2018	8,422
2019	8,684
2020	8,886
2021	9,149
2022	9,584

MORTALITY

- There were 1,425 deaths from prostate cancer during 2018-2022 in Northern Ireland. On average this was 285 deaths per year.
- Prostate cancer deaths made up 11.9% of all male cancer deaths.
- The median age of males who died from prostate cancer during 2018-2022 was 81 years.
- The risk of dying from prostate cancer varied by age, with 73.2% of men who died from prostate cancer aged 75 and over at death.
- In contrast, 0.9% of men who died from prostate cancer were aged 0 to 54 at death.

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

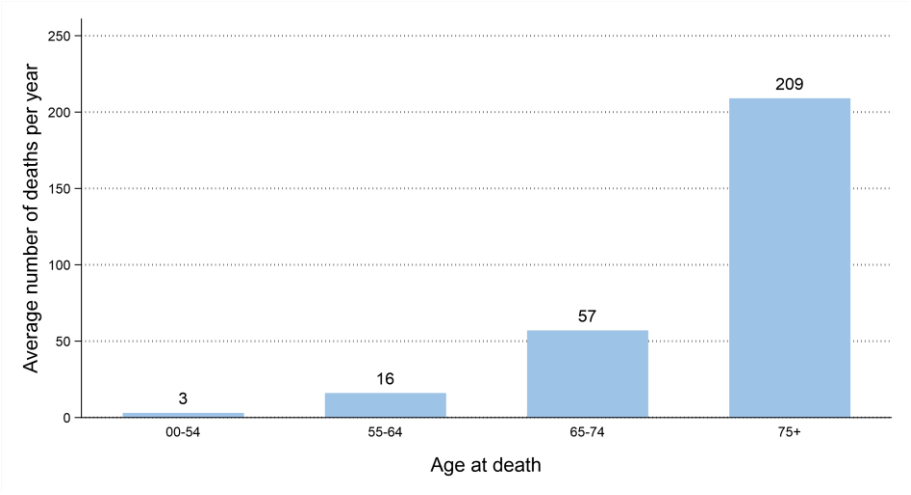
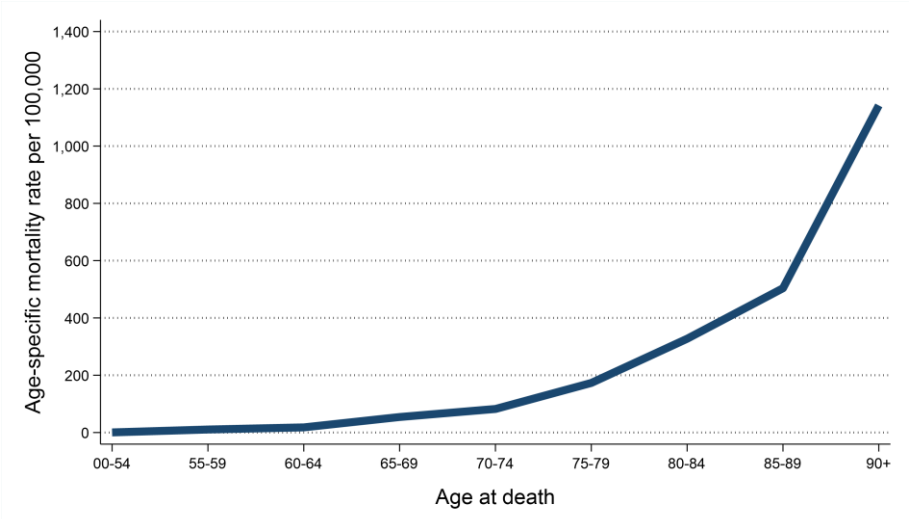


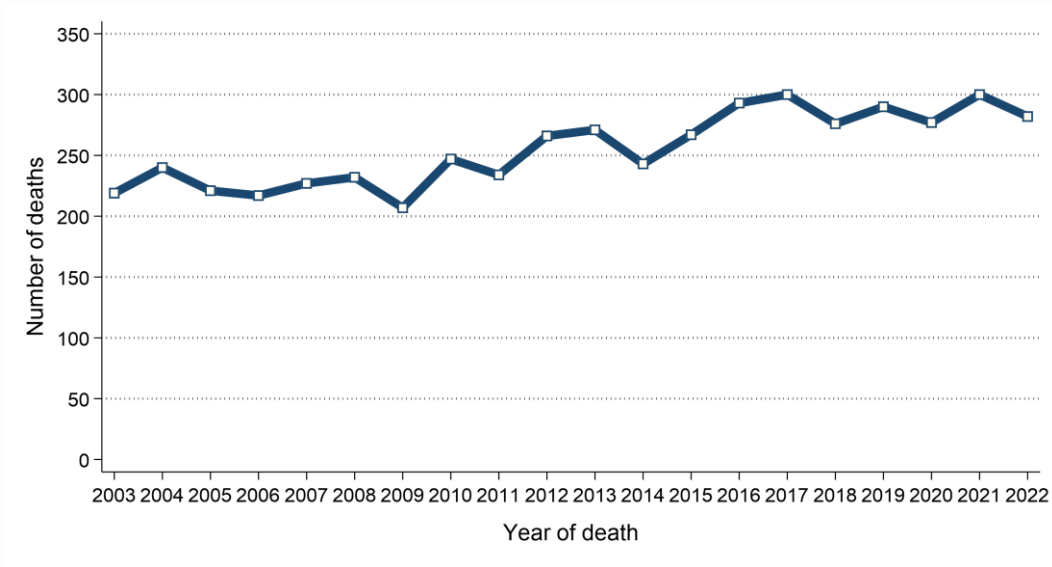
Figure 21: Age-specific mortality rates of prostate cancer in 2018-2022



MORTALITY TRENDS

- The number of deaths from prostate cancer among males increased between 2013-2017 and 2018-2022 by 3.7% from 1,374 deaths (275 deaths per year) to 1,425 deaths (285 deaths per year).

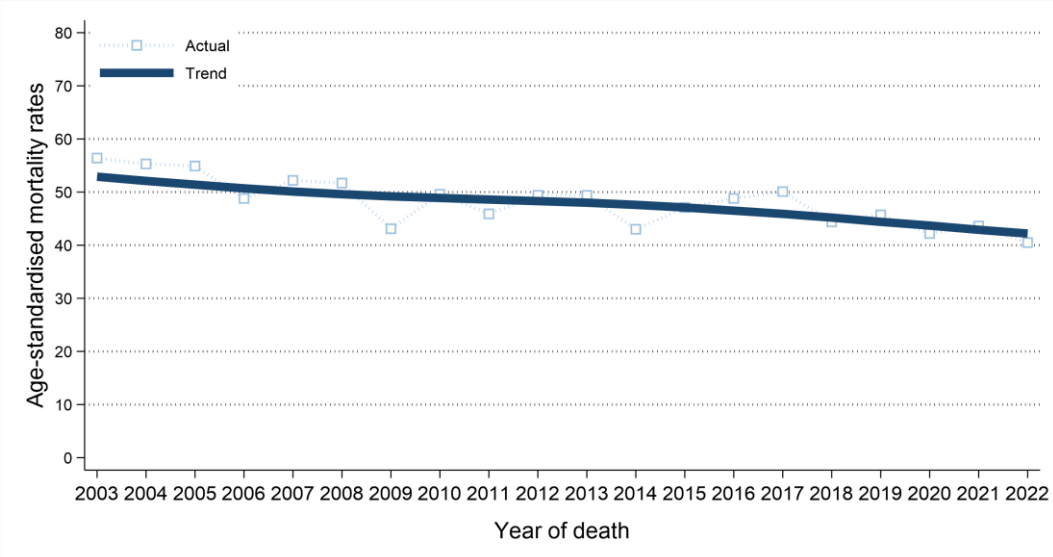
Figure 22: Trends in the number of deaths from prostate cancer from 2003 to 2022



Year of death	Number of deaths Males
2013	271
2014	243
2015	267
2016	293
2017	300
2018	276
2019	290
2020	277
2021	300
2022	282

- Male age-standardised prostate cancer mortality rates decreased between 2013-2017 and 2018-2022 by 9.6% from 47.8 to 43.2 deaths per 100,000 males. This change was not statistically significant.

Figure 23: Trends in mortality rates of prostate 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. prostate 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. prostate 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.