Multiple myeloma

(including plasma cell neoplasms)

Patients diagnosed 1993-2020
(ICD10: C90)

Further information

Further data is available at: **www.qub.ac.uk/research-centres/nicr**
Phone: +44 (0)28 9097 6028
e-mail: nicr@qub.ac.uk

Acknowledgements

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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.

Incidence

During 2016-2020:

▪ There were 103 male and 73 female cases of multiple myeloma diagnosed each year.

▪ The risk of developing multiple myeloma before the age of 75 was 1 in 142 for men and 1 in 261 for women, while before the age of 85 the risk was 1 in 73 for men and 1 in 125 for women.

Incidence by age at diagnosis - *Multiple myeloma, Cases in 2016-2020*

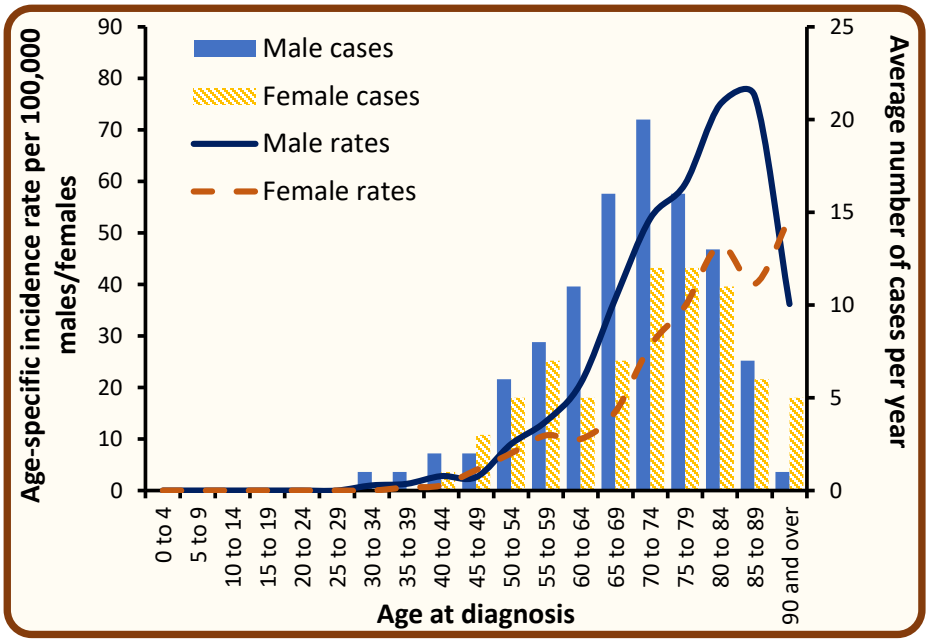
During 2016-2020:

▪ The median age at diagnosis was 71 for men and 74 for women.

▪ Cancer risk varied by age, with 35.9% of men and 46.6% of women aged 75 years or more at diagnosis.

▪ 10.8% of cases were diagnosed among those aged under 55.

Age at diagnosis	Average cases per year		
	Male	Female	Both sexes
0 - 54	12	9	19
54 - 64	19	12	31
65 - 74	36	19	55
75 +	37	34	72
All ages	103	73	176

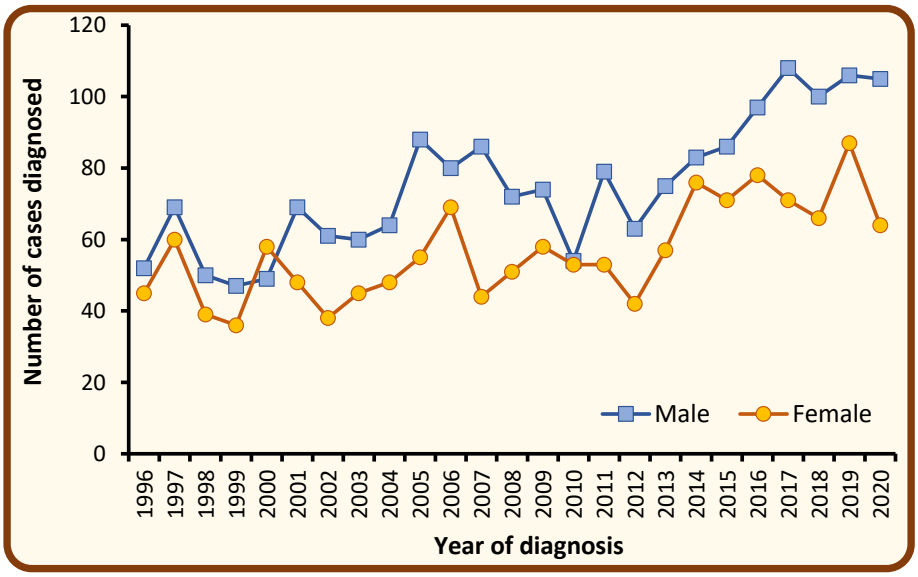


Incidence by year of diagnosis - *Multiple myeloma, Cases in 1996-2020*

▪ Among males the number of cases of multiple myeloma increased by 33.8% from an annual average of 77 cases in 2011-2015 to 103 cases in 2016-2020.

▪ Among females the number of cases of multiple myeloma increased by 21.7% from an annual average of 60 cases in 2011-2015 to 73 cases in 2016-2020.

Year of diagnosis	Male	Female	Both sexes
2011	79	53	132
2012	63	42	105
2013	75	57	132
2014	83	76	159
2015	86	71	157
2016	97	78	175
2017	108	71	179
2018	100	66	166
2019	106	87	193
2020	105	64	169

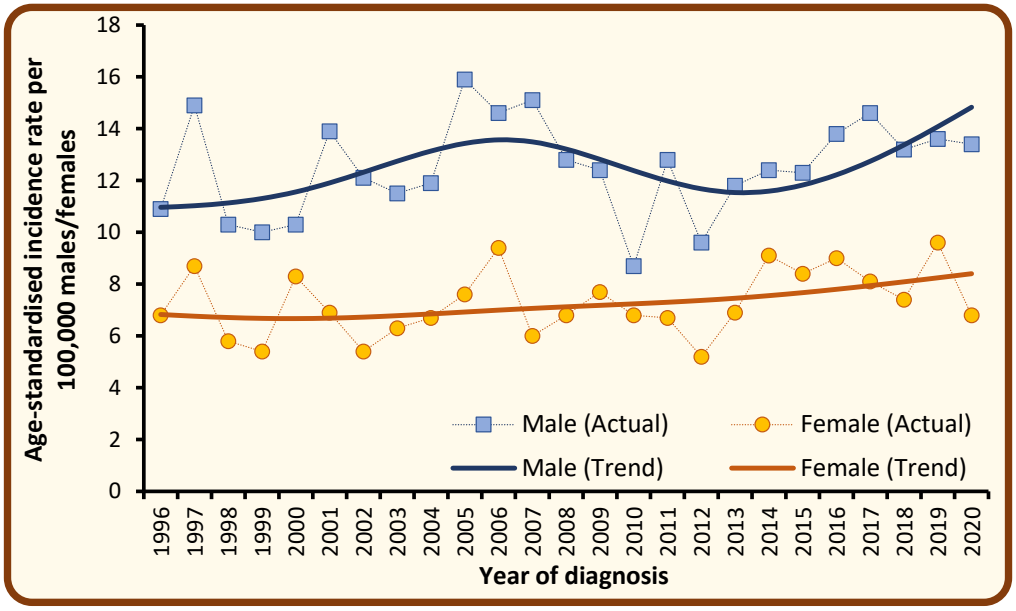


Note: Annual averages have been rounded to the nearest integer. Sums of numbers in table rows or columns may thus differ slightly from the given total.
NMSC: Non-melanoma skin cancer

Trends in age-standardised incidence rates - *Multiple myeloma, Cases in 1996-2020*

▪ Among males age-standardised incidence rates of multiple myeloma increased by 16.1% from 11.8 per 100,000 person years in 2011-2015 to 13.7 cases per 100,000 persons years in 2016-2020. This difference was not statistically significant.

▪ Among females age-standardised incidence rates of multiple myeloma increased by 12.3% from 7.3 per 100,000 person years in 2011-2015 to 8.2 cases per 100,000 persons years in 2016-2020. This difference was not statistically significant.



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 deprivation quintile - *Multiple myeloma, Cases in 2016-2020*

The annual number of cases during 2016-2020 varied in each deprivation quintile due to variations in population size and age.

After accounting for these factors, incidence rates:

▪ in the least socio-economically deprived areas did not vary significantly from the NI average.

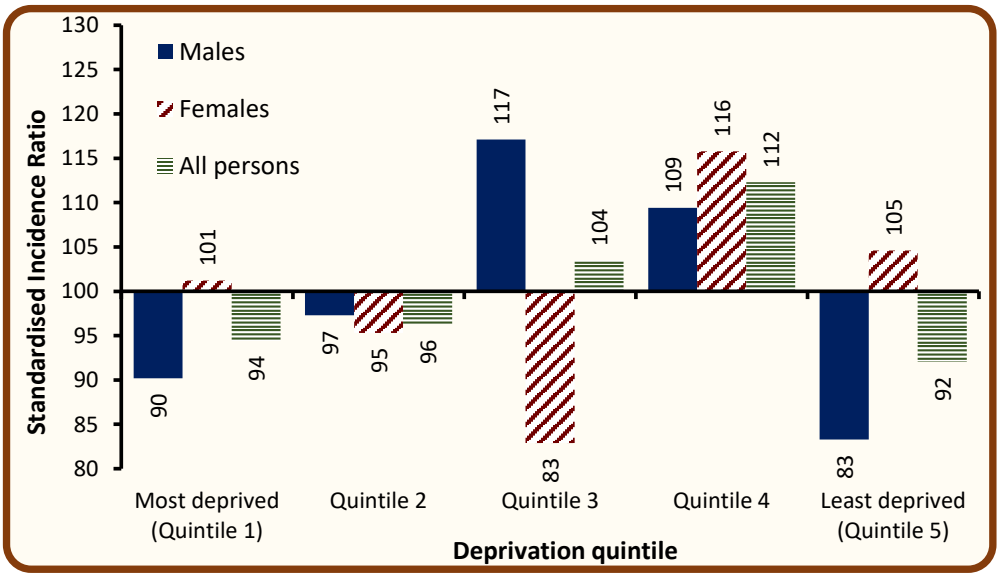
▪ in the most socio-economically deprived areas did not vary significantly from the NI average.

Deprivation quintile	Average cases per year		
	Male	Female	Both sexes
Most deprived (Quintile 1)	15	12	27
Quintile 2	20	14	34
Quintile 3	26	13	38
Quintile 4	24	18	42
Least deprived (Quintile 5)	18	17	35
Northern Ireland	103	73	176

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

A value above 100 means that incidence rates in that deprivation quintile are greater than the Northern Ireland average.

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



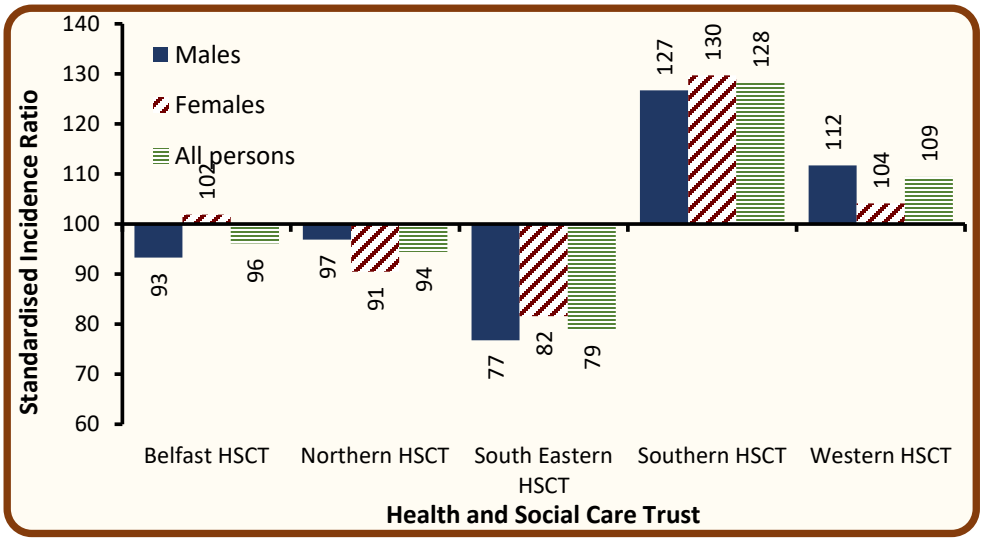
Incidence by Health and Social Care Trust (HSCT) - *Multiple myeloma, Cases in 2016-2020*

The annual number of cases during 2016-2020 varied in each HSCT 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 significantly lower than the NI average.
- in Southern HSCT were significantly higher than the NI average.
- in Western HSCT did not vary significantly from the NI average.

Health and Social Care Trust	Average cases per year		
	Male	Female	Both sexes
Belfast HSCT	17	14	31
Northern HSCT	27	18	44
South Eastern HSCT	17	13	29
Southern HSCT	25	17	42
Western HSCT	18	11	30
Northern Ireland	103	73	176



Standardised incidence ratios compare incidence rates in each HSC Trust with the Northern Ireland incidence rate. A value above 100 means that incidence rates in that HSC Trust 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.

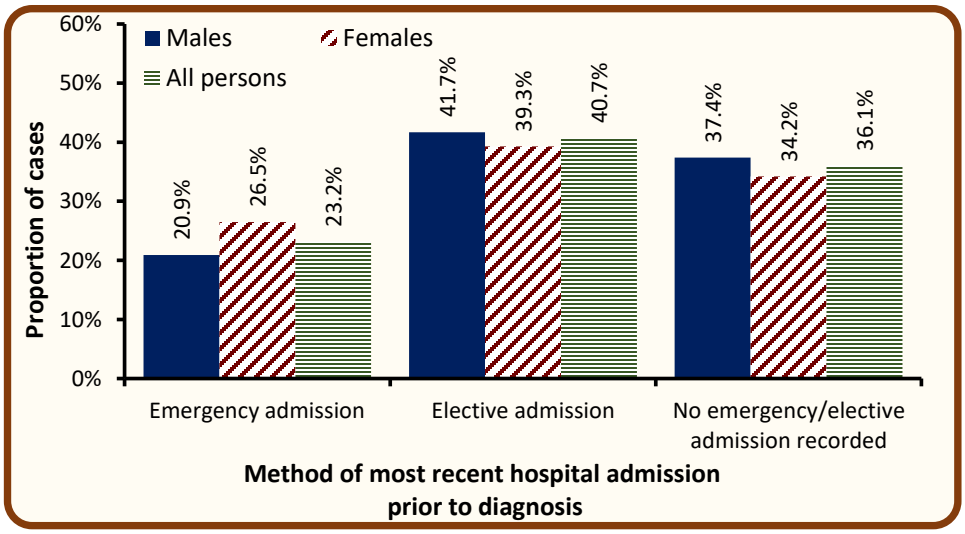
Data for Local Government Districts and Parliamentary Constituencies are available at www.qub.ac.uk/research-centres/nicr

Incidence by method of most recent admission to hospital - *Multiple myeloma, Cases in 2016-2020*

During 2016-2020:

- 23.2% of cases had an emergency admission to hospital recorded up to 30 days prior to their cancer diagnosis.
- 20.9% of male cases had an emergency admission up to 30 days prior to diagnosis, compared to 26.5% of female cases.
- In 36.1% of diagnosed cases there was no record of a hospital inpatient admission up to 30 days prior to diagnosis.

Method of admission	Average cases per year		
	Male	Female	Both sexes
Emergency admission	22	19	41
Elective admission	43	29	72
No emergency/elective admission recorded	39	25	64
Total	103	73	176



Admission method refers to the most recent hospital inpatient admission that a patient had prior to cancer diagnosis, regardless of reason for the admission.

Admissions are considered up to a maximum of 30 days prior to diagnosis. Admissions up to two days post diagnosis are also considered to allow for a reasonable margin or error in data recording.

The majority of patients with no inpatient admission recorded prior to diagnosis are likely to have been diagnosed via an outpatient route.

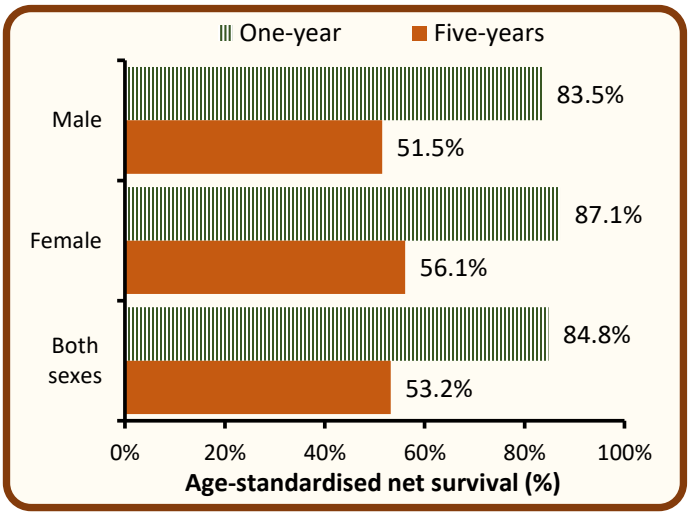
Survival

- 77.9% of patients were alive one year and 40.9% were alive five years from a multiple myeloma diagnosis in 2011-2015. (observed survival)
- Age-standardised net survival (ASNS), which removes the effect of deaths from causes unrelated to cancer, was 84.8% one year and 53.2% five years from a multiple myeloma diagnosis in 2011-2015.
- Five-year survival (ASNS) for multiple myeloma patients diagnosed in 2011-2015 was 51.5% among men and 56.1% among women.

Gender	Observed survival		Age-standardised net survival	
	One-year	Five-years	One-year	Five-years
Male	78.5%	41.0%	83.5%	51.5%
Female	77.1%	40.8%	87.1%	56.1%
Both sexes	77.9%	40.9%	84.8%	53.2%

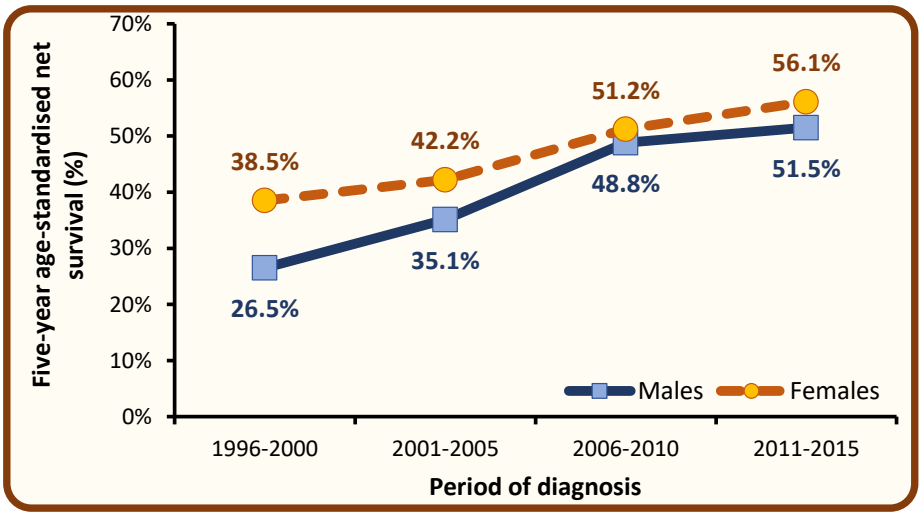
Observed survival is the proportion of patients still alive one/five years after diagnosis. However, in this measure patients may have died from causes unrelated to their cancer.

Age-standardised net survival is the proportion of patients who would survive if the patient could not die from causes unrelated to their cancer. This measure is more typically used in studies of cancer survival.



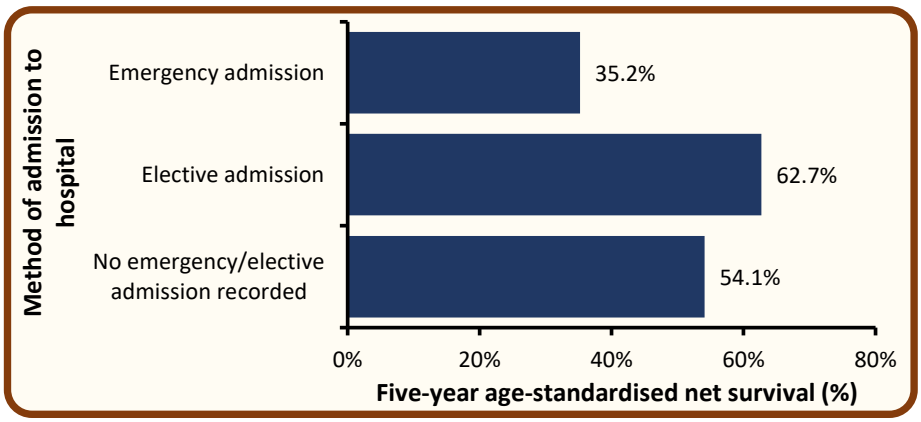
Trends in survival - *Multiple myeloma, Patients diagnosed in 1996-2015*

- Among men five-year survival (ASNS) from multiple myeloma increased from 48.8% in 2006-2010 to 51.5% in 2011-2015. This difference was not statistically significant.
- Among women five-year survival (ASNS) from multiple myeloma increased from 51.2% in 2006-2010 to 56.1% in 2011-2015. This difference was not statistically significant.



Survival by method of most recent admission to hospital - *Multiple myeloma, Patients diagnosed in 2011-2015*

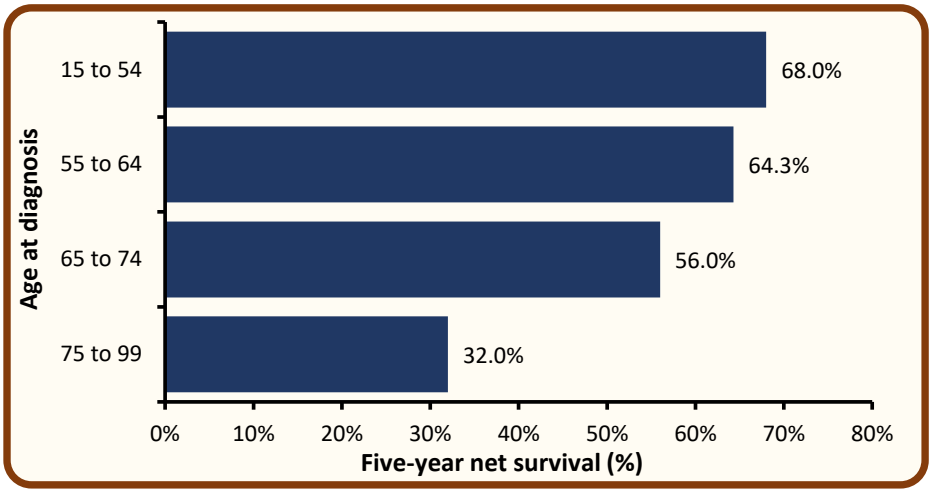
- Five-year survival (ASNS) among multiple myeloma patients who had an emergency admission to hospital up to 30 days prior to their cancer diagnosis was 35.2% compared to 62.7% among those with elective admissions and 54.1% among those who had no hospital admissions recorded up to 30 days prior to diagnosis.



Survival by age at diagnosis - *Multiple myeloma, Patients diagnosed in 2011-2015*

▪ Survival from multiple myeloma among patients diagnosed in 2011-2015 was strongly related to age with better five-year survival among younger age groups. In particular:

▪ Five-year net survival was 68.0% among patients aged 15 to 54 at diagnosis, compared to to 32.0% among those aged 75 and over.



Prevalence

▪ At the end of 2020, there were 943 people (Males: 548; Females: 395) living with multiple myeloma who had been diagnosed with the disease during 1996-2020.

▪ Of these, 58.1% were male, 40.2% were aged 75 and over, and 15.8% had been diagnosed in the previous year.

25-year prevalence refers to the number of cancer survivors who were alive at the end of 2020, and had been diagnosed with their cancer in the previous 25 years (i.e. 1996-2020).

Time since diagnosis	25-year prevalence								
	Aged 0-74			Aged 75+			All ages		
	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes
0-1 year	57	32	89	38	22	60	95	54	149
1-5 years	177	108	285	95	90	185	272	198	470
5-10 years	72	40	112	39	45	84	111	85	196
10-25 years	43	35	78	27	23	50	70	58	128
0-25 years	349	215	564	199	180	379	548	395	943

Trends in 10-year prevalence - *Multiple myeloma, Patients alive at end of each year from 2011-2020*

▪ Among males the number of survivors from multiple myeloma who had been diagnosed within the previous ten years increased by 39.0% from 344 survivors in 2015 to 478 survivors in 2020.

▪ Among females the number of survivors from multiple myeloma who had been diagnosed within the previous ten years increased by 32.2% from 255 survivors in 2015 to 337 survivors in 2020.

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Male	294	309	335	341	344	371	386	412	438	478
Female	219	222	233	242	255	275	288	309	336	337
Both sexes	513	531	568	583	599	646	674	721	774	815

Mortality

- During 2016-2020 there were 46 male and 37 female deaths from multiple myeloma each year.
- Multiple myeloma made up 2.0% of all male, and 1.8% of all female cancer deaths (ex NMSC).

Deaths by age at death - *Multiple myeloma, Deaths in 2016-2020*

- The median age at death during 2016-2020 was 76 for men and 78 for women.
- Risk of death from multiple myeloma was strongly related to patient age, with 56.5% of men and 67.6% of women aged 75 years or more at time of death.
- 3.6% of multiple myeloma deaths occurred among those aged under 55.

Age at death	Average deaths per year		
	Male	Female	Both sexes
0 - 54	2	1	3
55 - 64	5	4	9
65 - 74	13	8	20
75 +	26	25	51
All ages	46	37	84

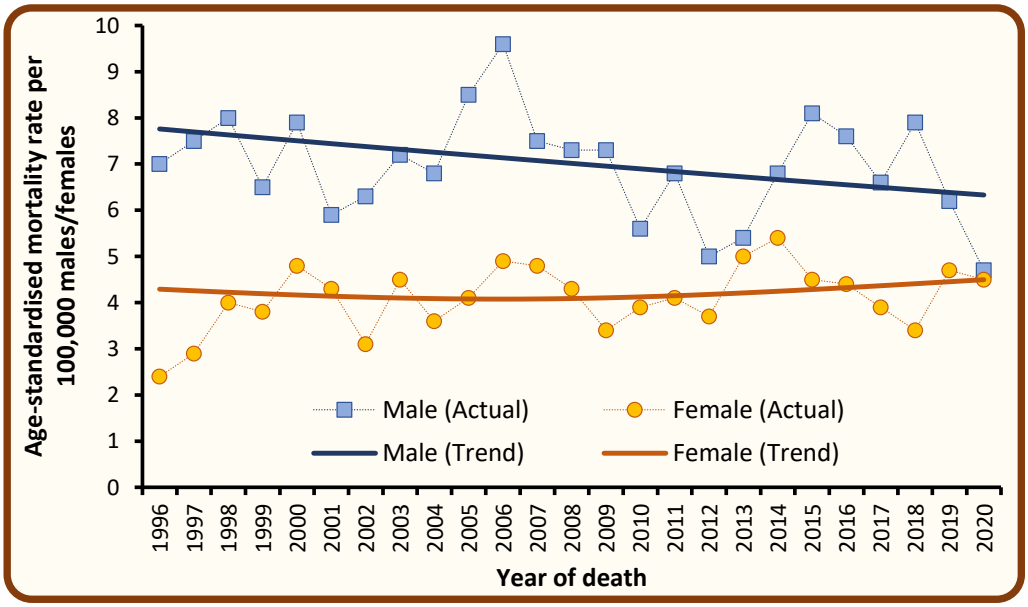
Deaths by year of death - *Multiple myeloma, Deaths in 2011-2020*

- Among males the number of deaths from multiple myeloma increased by 17.9% from an annual average of 39 deaths in 2011-2015 to 46 deaths in 2016-2020.
- Among females the number of deaths from multiple myeloma did not change between 2011-2015 and 2016-2020, with an annual average of 37 deaths per year in both five-year periods.

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Male	39	30	33	42	52	51	45	56	44	35
Female	32	29	41	45	40	38	33	31	43	42
Both sexes	71	59	74	87	92	89	78	87	87	77

Trends in age-standardised mortality rates - *Multiple myeloma, Deaths in 1996-2020*

- Among males age-standardised mortality rates from multiple myeloma increased by 1.5% between 2011-2015 and 2016-2020 from 6.5 to 6.6 deaths per 100,000 persons years. This difference was not statistically significant.
- Among females age-standardised mortality rates from multiple myeloma decreased by 6.7% between 2011-2015 and 2016-2020 from 4.5 to 4.2 deaths per 100,000 persons years. This difference was not statistically significant.



Mortality data are provided by the Northern Ireland General Registrar Office via the Department of Health.

Counts of the number of deaths are based upon the year that death occurred, and upon the primary cause of death only.

Age-standardised mortality rates remove changes over time caused by population growth and/or ageing.

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 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 are assigned based on a patient's postcode of usual residence at diagnosis using the Jan 2021 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).

A **crude incidence/mortality rate** is 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.

An **age-standardised incidence/mortality rate** per 100,000 person years is an estimate 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.

A **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 are a measure of the precision of a statistic (e.g. colorectal 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. cervical 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 2020 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.

Observed survival refers to the proportion of patients who survive a specified amount of time from their date of diagnosis. Observed survival considers death from any cause and is not adjusted for the age of the patient. Cause of death may be unrelated to the cancer the patient has been diagnosed with.

Net Survival is an estimate of survival where the effect on survival of background population mortality rates has been removed. It represents the [theoretical] survival of cancer patients if they could only die from cancer-related causes. Age-standardised net survival estimates are the estimates that would occur if that population of cancer patients had a standard population age structure. The age groups and weights used here are those used by international studies such as EUROCARE, an international study group that compares cancer survival among European countries. However, due to the small number of patients in NI, the first two age categories in the standard population are combined.

Mortality: Information relating to cancer mortality is sourced from the General Registrar Office (GRONI) via the Department of Health (NI). Results are based upon the date on which death occurs, and may thus differ slightly than those produced by the Northern Ireland Statistics and Research Agency (NISRA), which produces deaths data based upon the date on which the death is registered with GRONI.