

Colorectal cancer

Patients diagnosed 1993-2019
(ICD10: C18-C20)

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

The Northern Ireland Cancer Registry (NICR) is funded by the Public Health Agency and is based in Queen's University, Belfast. NICR uses data provided by patients and collected by the health service as part of their care and support.

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 2015-2019:

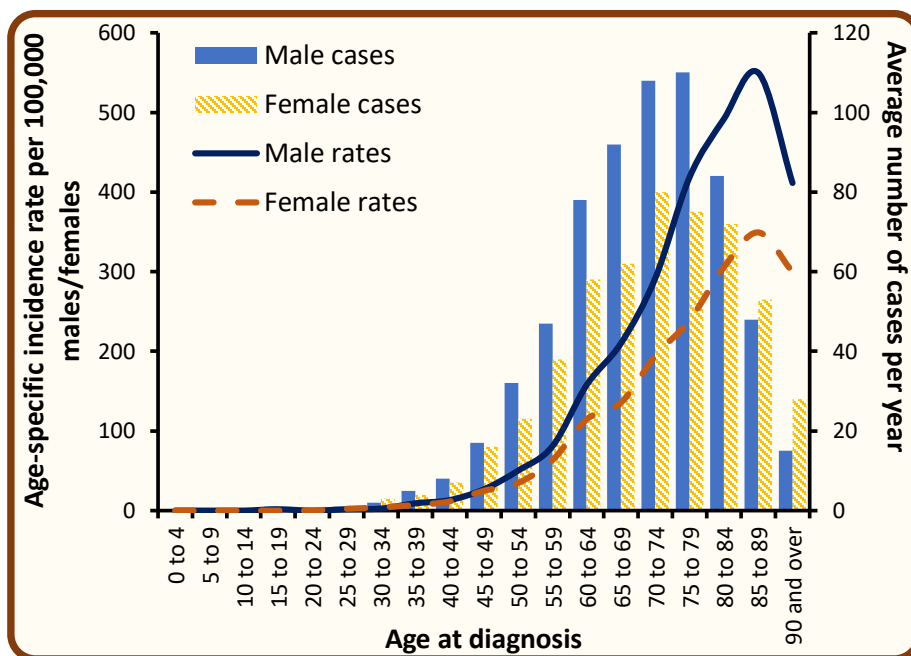
- There were 649 male and 522 female cases of colorectal cancer diagnosed each year.
- Colorectal cancer made up 13.1% of all male cancers (ex NMSC), and 10.6% of all female cancers (ex NMSC).
- The risk of colorectal cancer before the age of 75 was 1 in 24.1 for men and 1 in 34.3 for women, while before the age of 85 the risk was 1 in 11.9 for men and 1 in 18.1 for women.

Incidence by age at diagnosis - Colorectal cancer, Cases in 2015-2019

During 2015-2019:

- The median age at diagnosis was 71 for men and 73 for women.
- Cancer risk increased with age, with 39.6% of men and 43.7% of women aged 75 years or more at diagnosis.
- 10.3% of cases were diagnosed among those aged under 55.

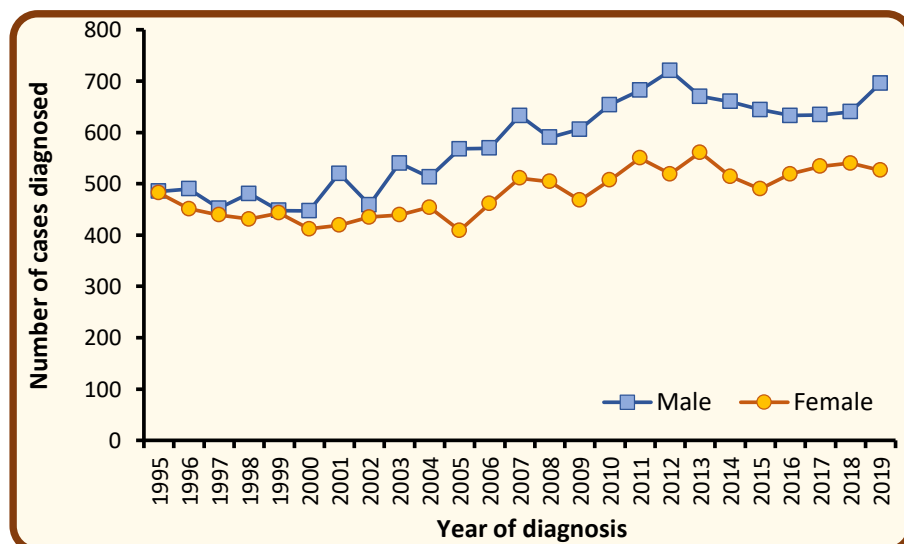
Age at diagnosis	Average cases per year		
	Male	Female	Both sexes
0 - 54	66	54	121
55 - 64	125	96	221
65 - 74	200	142	342
75 +	257	228	486
All ages	649	522	1,171



Incidence by year of diagnosis - Colorectal cancer, Cases in 1995-2019

- Among males the number of colorectal cancer decreased by 4.1% from an annual average of 677 cases in 2010-2014 to 649 cases in 2015-2019.
- Among females the number of cases of colorectal cancer decreased by 1.5% from an annual average of 530 cases in 2010-2014 to 522 cases in 2015-2019.

Year of diagnosis	Male	Female	Both sexes
2010	654	507	1,161
2011	682	550	1,232
2012	720	519	1,239
2013	670	561	1,231
2014	660	514	1,174
2015	644	490	1,134
2016	633	519	1,152
2017	634	534	1,168
2018	640	540	1,180
2019	696	526	1,222

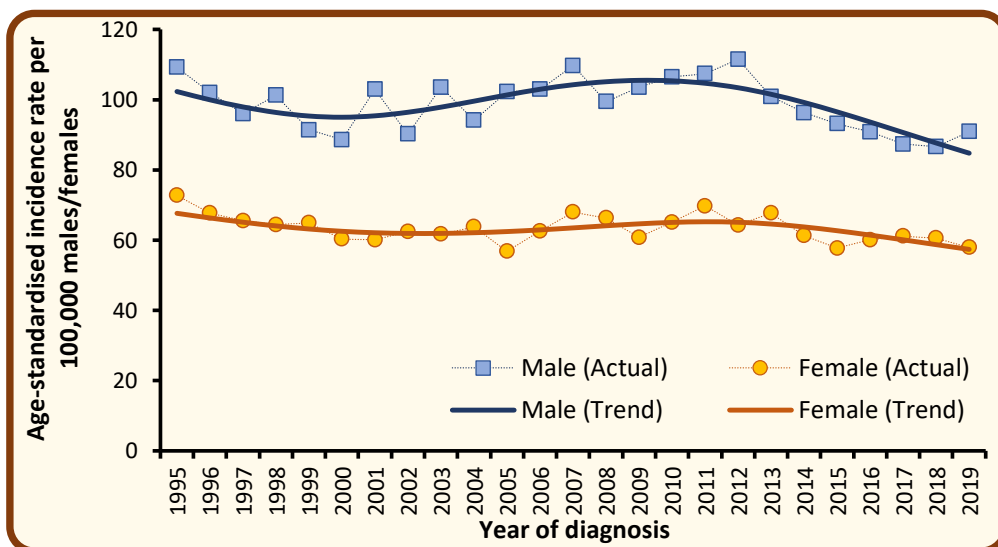


Note: Annual averages have been rounded to the nearest integer. Sums of numbers in table rows or columns may thus differ slightly from the given total.

NMSC: Non-melanoma skin cancer

Trends in age-standardised incidence rates - Colorectal cancer, Cases in 1995-2019

- Among males age-standardised incidence rates of colorectal cancer decreased by 14.1% from 104.4 per 100,000 person years in 2010-2014 to 89.7 cases per 100,000 persons years in 2015-2019. This difference was statistically significant.
- Among females age-standardised incidence rates of colorectal cancer decreased by 9.3% from 65.6 per 100,000 person years in 2010-2014 to 59.5 cases per 100,000 persons years in 2015-2019. This difference was 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).

Trends in age-standardised incidence rates by age - Colorectal cancer, Cases in 1995-2019

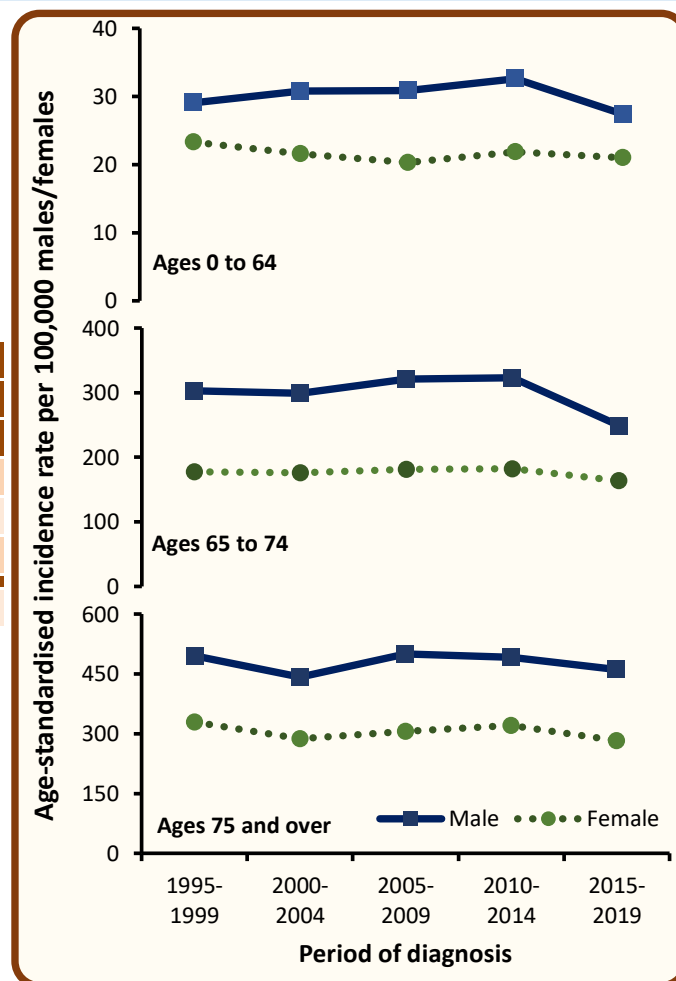
For the annual average number of cases diagnosed, between 2010-2014 and 2015-2019 there was:

- a decrease of 9.9% among males aged 0 to 64, a decrease of 12.7% among males aged 65 to 74 and an increase of 9.8% among males aged 75 and over.
- an increase of 2.0% among females aged 0 to 64, a decrease of 0.7% among females aged 65 to 74 and a decrease of 4.2% among females aged 75 and over.

Age group	Average cases per year			
	2010-2014		2015-2019	
	Male	Female	Male	Female
0 to 64	213	148	192	151
65 to 74	229	143	200	142
75 and over	235	239	258	229
All ages	677	530	649	522

For age-standardised incidence rates, between 2010-2014 and 2015-2019 there was:

- a decrease of 16.0% among males aged 0 to 64, a decrease of 22.8% among males aged 65 to 74 and no significant change among males aged 75 and over.
- no significant change among females aged 0 to 64, no significant change among females aged 65 to 74 and a decrease of 11.7% among females aged 75 and over.



Incidence by deprivation quintile - Colorectal cancer, Cases in 2015-2019

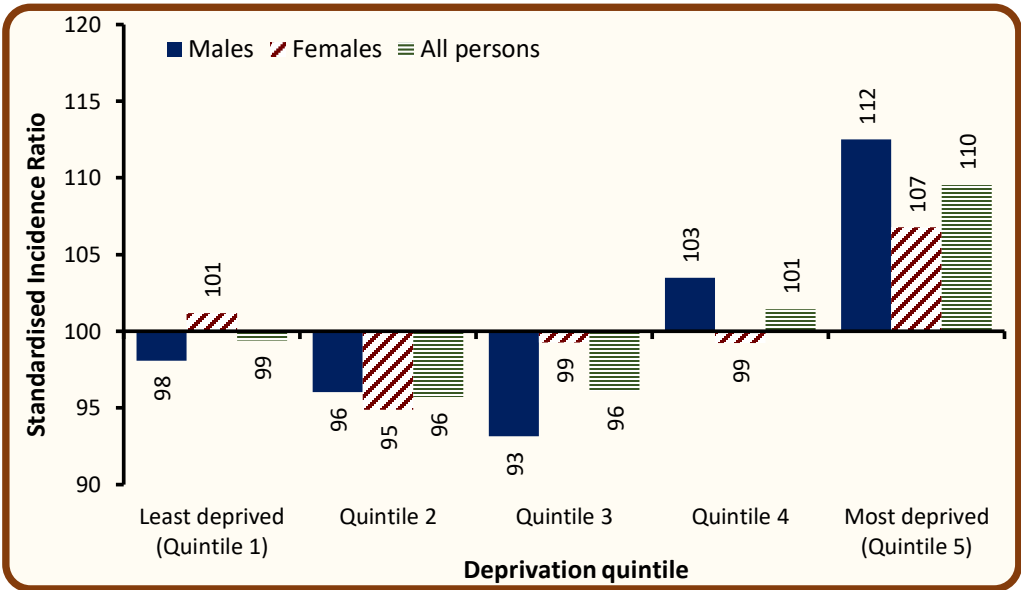
The annual number of cases during 2015-2019 varied in each deprivation quintile due to variations in population size and age.

After accounting for these factors, incidence rates:

- in the most socio-economically deprived areas were 9.5% higher than the NI average.
- in the least socio-economically deprived areas did not vary significantly from the NI average.

Deprivation quintile	Average cases per year		
	Male	Female	Both sexes
Least deprived (Quintile 1)	135	114	249
Quintile 2	133	104	237
Quintile 3	129	107	236
Quintile 4	134	104	238
Most deprived (Quintile 5)	118	93	211
Northern Ireland	649	522	1,171

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.



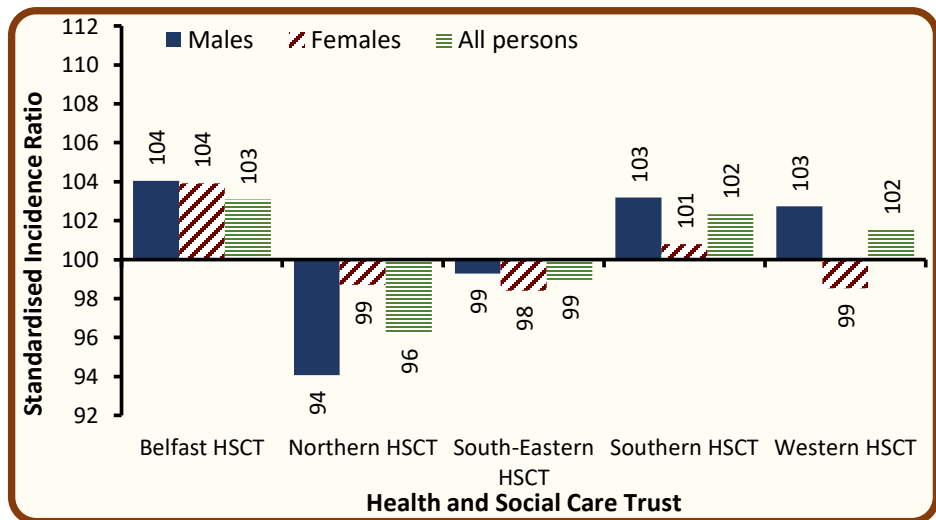
Incidence by Health and Social Care Trust (HSCT) - Colorectal cancer, Cases in 2015-2019

The annual number of cases during 2015-2019 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 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.

Health and Social Care Trust	Average cases per year		
	Male	Female	Both sexes
Belfast HSCT	118	104	222
Northern HSCT	164	137	300
South-Eastern HSCT	136	108	244
Southern HSCT	126	96	222
Western HSCT	106	77	183
Northern Ireland	649	522	1,171



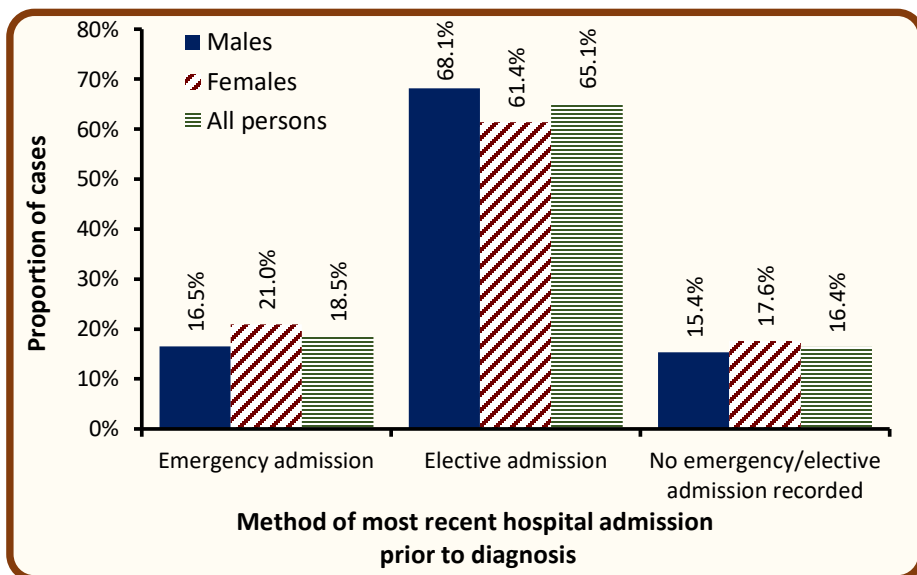
Standardised incidence ratios compare incidence rates in each HSC Trust with the Northern Ireland incidence rate. A value above 100 means that incidence rates in that HSC Trust are greater than the NI average. This measure takes account of population size and age structure. Differences are thus not a 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 - Colorectal cancer, Cases in 2015-2019

During 2015-2019:

- 18.5% of cases had an emergency admission to hospital recorded up to 30 days prior to cancer diagnosis.
- 16.5% of male cases had an emergency admission up to 30 days prior to diagnosis, compared to 21.0% of female cases.
- In 16.4% of diagnosed cases there was no record of a hospital inpatient admission up to 30 days prior to the diagnosis.

Method of admission	Average cases per year		
	Male	Female	Both sexes
Emergency admission	107	109	217
Elective admission	442	320	763
No emergency/elective admission recorded	100	92	192
Total	649	522	1,171



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.

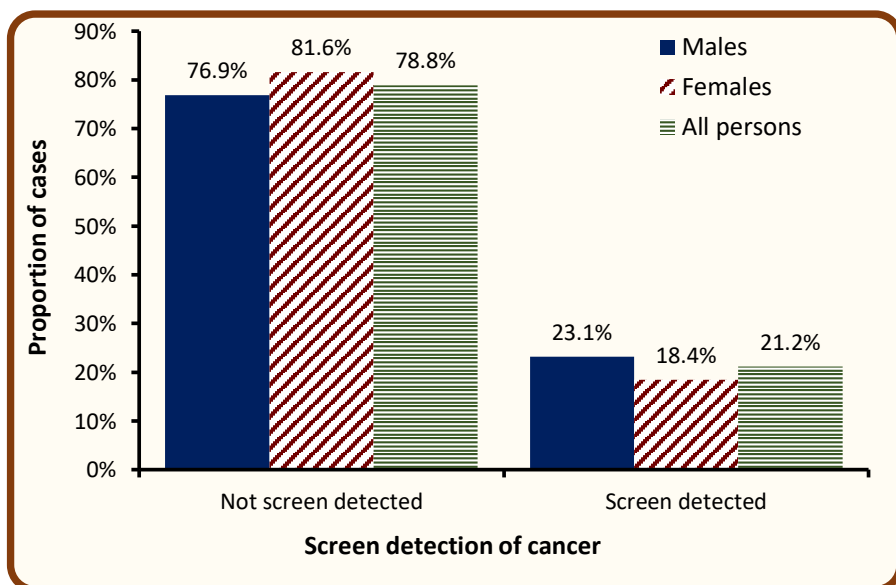
The majority of patients with no inpatient admission recorded prior to diagnosis are likely to have been diagnosed via an outpatient route.

Incidence by screen detection of cancer - Colorectal cancer, Ages 60 to 74, Cases in 2015-2019

During 2015-2019:

- 21.2% of cases diagnosed among those aged 60 to 74 were detected by bowel cancer screening.
- 23.1% of cases among males aged 60 to 74 were screen detected, compared to 18.4% of cases among females in the same age group.

Screen detected	Average cases per year		
	Male	Female	Both sexes
Not screen detected	214	163	377
Screen detected	64	37	101
Total	278	200	478



Bowel cancer screening is currently offered to all Northern Ireland residents aged 60 to 74 every two years.

This simple test checks for signs of colorectal cancer. In particular it can identify people who have no noticeable cancer symptoms. Screening can thus help detect cancer at an early stage when treatment is more effective.

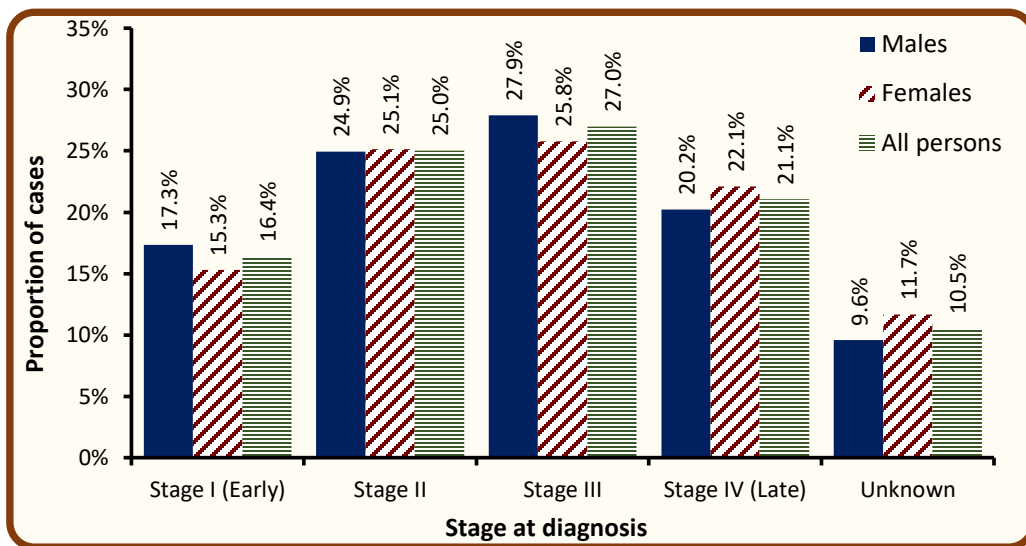
The presented figures are for people with colorectal cancer who were initially identified via screening. It does not include those identified with polyps or who had a negative test.

Incidence by stage at diagnosis - Colorectal cancer, Cases in 2015-2019

During 2015-2019:

- 89.5% of cases diagnosed had a stage assigned.
- 16.4% of cases were diagnosed at stage I. (18.4% of staged cases)
- 21.1% of cases were diagnosed at stage IV. (23.5% of staged cases)
- Among cases which were staged, 22.4% of male cases were diagnosed at stage IV, compared to 25.0% of female cases.

Stage at diagnosis	Average cases per year		
	Male	Female	Both sexes
Stage I (Early)	113	80	192
Stage II	162	131	293
Stage III	181	135	316
Stage IV (Late)	131	115	247
Unknown	62	61	123
All stages	649	522	1,171



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.

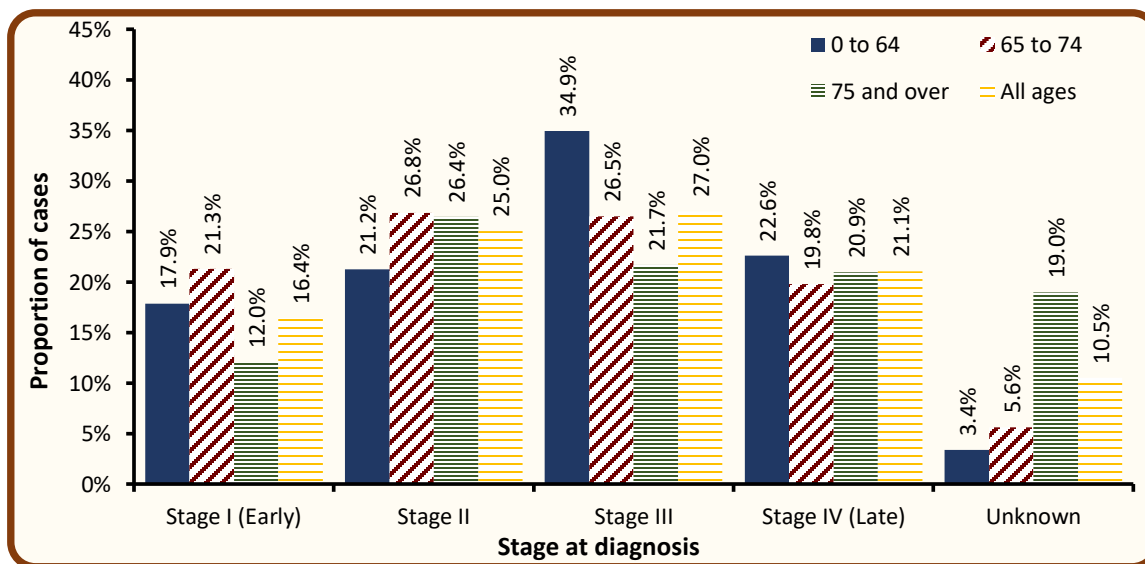
The classification used here to stage cancer is the TNM classification (Version 7 prior to 2018, Version 8 from 2018 onwards).

Incidence by age and stage at diagnosis - Colorectal cancer, Cases in 2015-2019

During 2015-2019:

- 19.0% of cases among those aged 75 and over did not have a stage assigned at diagnosis, compared to 3.4% of cases among those aged 0 to 64.
- Among cases which were staged, 25.8% of cases among those aged 75 and over were diagnosed at stage IV, compared to 23.4% of cases among those aged 0 to 64.

Stage at diagnosis	Average cases per year			
	0 to 64	65 to 74	75 and over	All ages
Stage I (Early)	61	73	58	192
Stage II	73	92	129	293
Stage III	120	91	105	316
Stage IV (Late)	77	68	102	247
Unknown	12	19	92	123
All stages	343	342	486	1,171



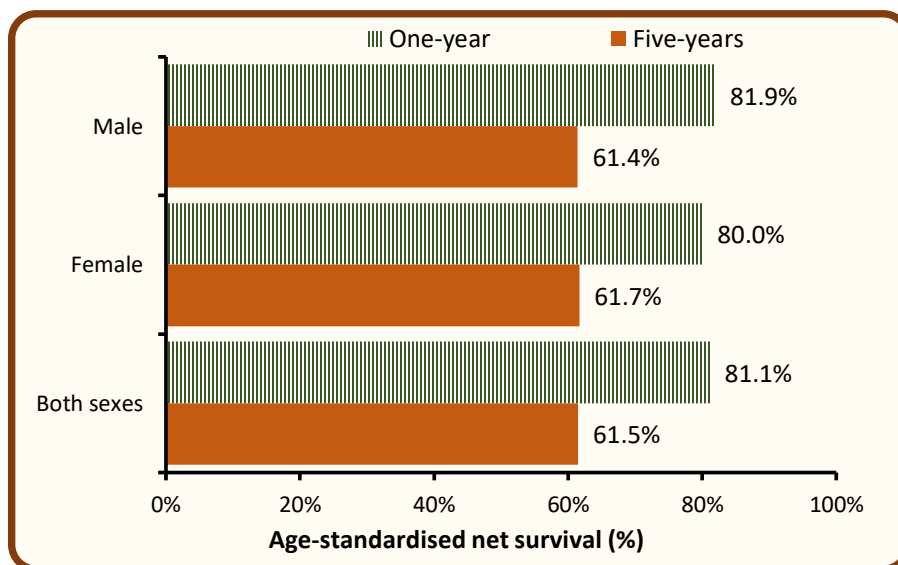
Survival

- 76.7% of patients were alive one year and 50.3% were alive five years from a colorectal cancer diagnosis in 2010-2014. (observed survival)
- Age-standardised net survival (ASNS), which removes the effect of deaths from causes unrelated to cancer, was 81.1% one year and 61.5% five years from a colorectal cancer diagnosis in 2010-2014.
- Five-year survival (ASNS) for colorectal cancer patients diagnosed in 2010-2014 was 61.4% among men and 61.7% among women.

Gender	Observed survival		Age-standardised net survival	
	One-year	Five-years	One-year	Five-years
Male	78.4%	50.7%	81.9%	61.4%
Female	74.6%	49.8%	80.0%	61.7%
Both sexes	76.7%	50.3%	81.1%	61.5%

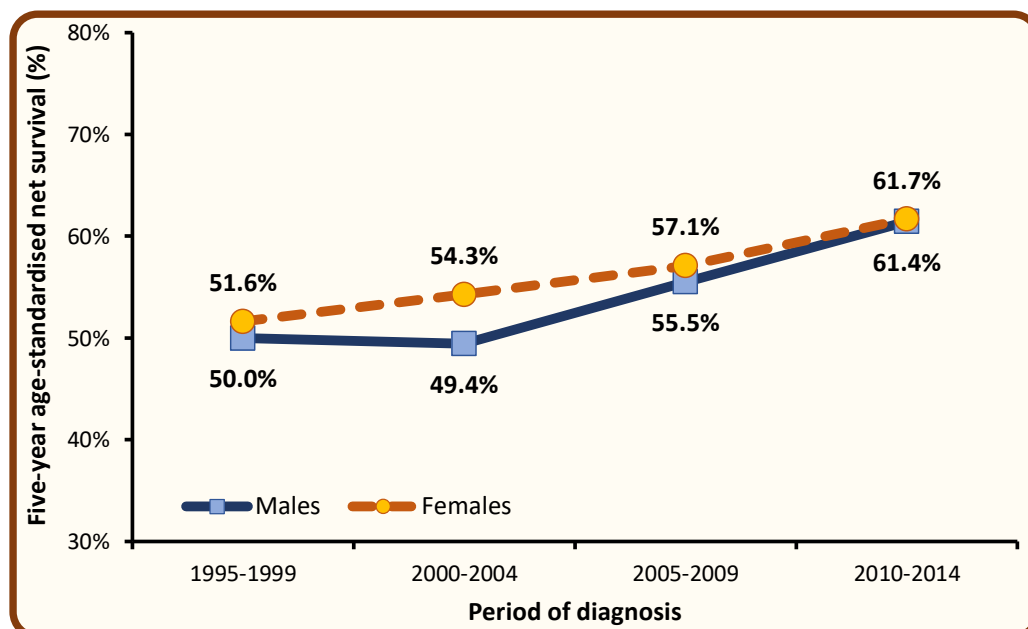
Observed survival is the proportion of patients still alive one/five years after diagnosis. However, in this measure patients may have died from causes unrelated to their cancer.

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.



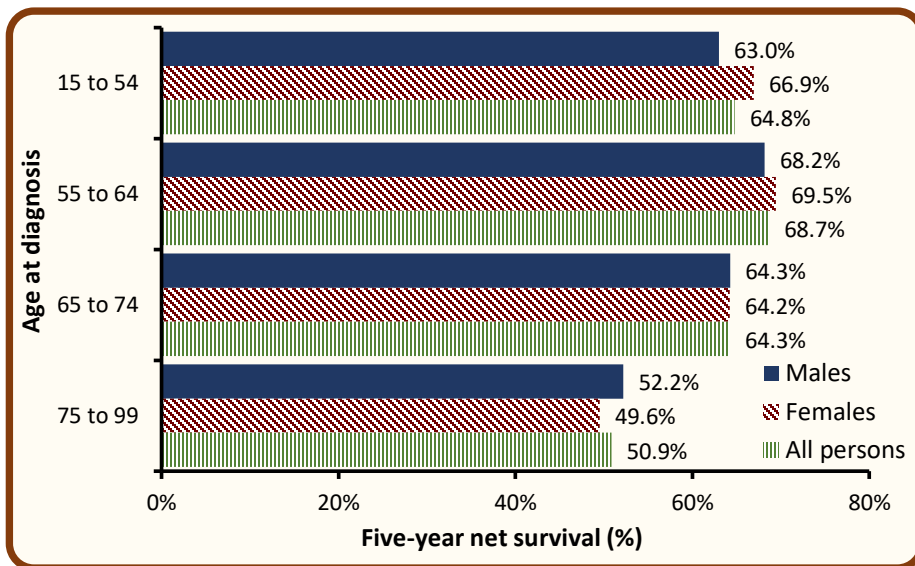
Trends in survival - Colorectal cancer, Patients diagnosed in 1995-2014

- Among men five-year survival (ASNS) from colorectal cancer increased from 55.5% in 2005-2009 to 61.4% in 2010-2014. This difference was statistically significant.
- Among women five-year survival (ASNS) from colorectal cancer increased from 57.1% in 2005-2009 to 61.7% in 2010-2014. This difference was not statistically significant.



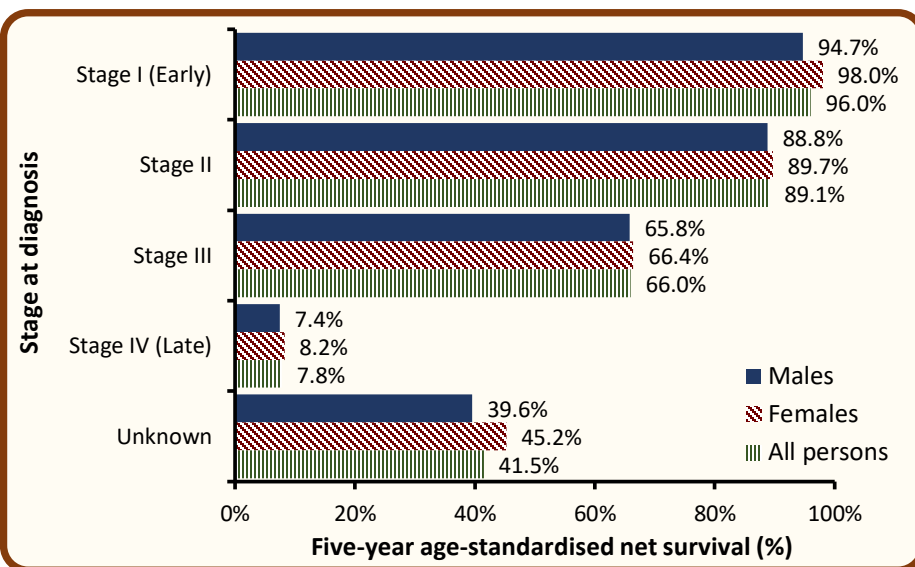
Survival by age at diagnosis - Colorectal cancer, Patients diagnosed in 2010-2014

- Survival from colorectal cancer among patients diagnosed in 2010-2014 was related to age with better five-year survival among younger age groups.
- Five-year net survival ranged from 68.7% among patients aged 55-64 at diagnosis to 50.9% among those aged 75 and over.
- Five-year net survival among patients aged 75 and over was 52.2% for men and 49.6% for women.



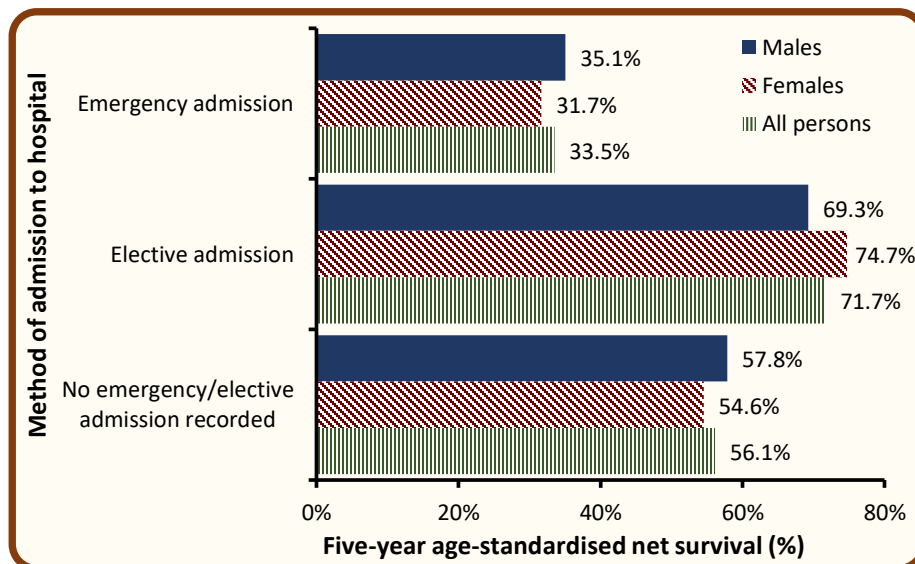
Survival by stage at diagnosis - Colorectal cancer, Patients diagnosed in 2010-2014

- Stage at diagnosis is one of the most important factors in colorectal cancer survival with five-year survival decreasing as stage increases.
- Five-year survival (ASNS) ranged from 96.0% for early stage (stage I) disease to 7.8% for late stage (stage IV) disease.
- Five-year survival (ASNS) for unstaged cancer was 41.5%.
- Five-year survival (ASNS) for stage IV cancer was 7.4% for men, compared to 8.2% for women.



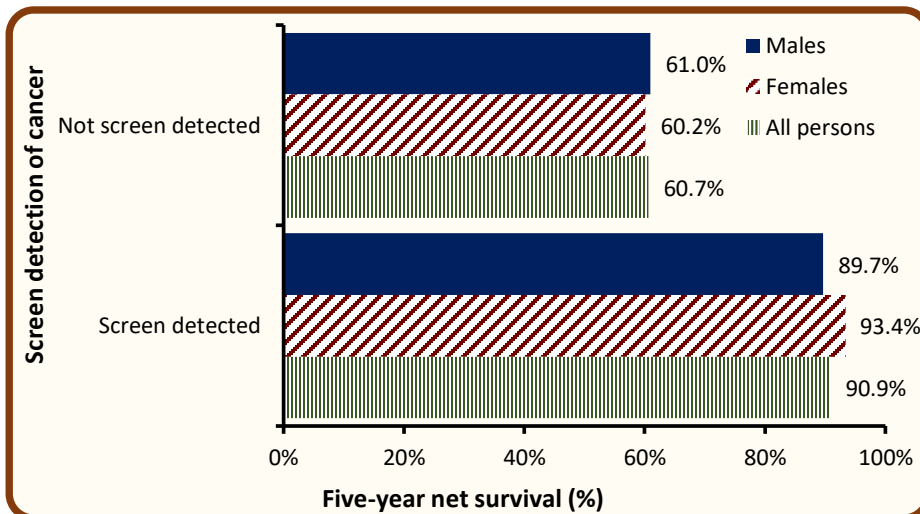
Survival by method of most recent admission to hospital - Colorectal cancer, Patients diagnosed in 2010-2014

- Five-year survival (ASNS) among patients who had an emergency admission to hospital within 30 days prior to their cancer diagnosis was 33.5% compared to 71.7% among those with elective admissions and 56.1% among those who had no hospital admissions recorded within 30 days prior to diagnosis.
- Five-year survival (ASNS) among patients who had an emergency admission to hospital within 30 days prior to their cancer diagnosis was 35.1% for men, compared to 31.7% for women.



Survival by screen detection of cancer - Colorectal cancer, Ages 60-74, Patients diagnosed in 2010-2014

- Five-year survival among patients aged 60 to 74 whose cancer was detected by screening was 90.9% compared to 60.7% among those who were not detected via screening.
- Five-year survival among patients aged 60 to 74 whose cancer was detected via screening was 89.7% for men, compared to 93.4% for women.



Prevalence

- At the end of 2019, there were 8,861 people (Males: 4,813; Females: 4,048) living with colorectal cancer who had been diagnosed with the disease during 1995-2019.
- Of these, 54.3% were male, 49.2% were aged 75 and over, and 11.2% had been diagnosed in the previous year.

25-year prevalence refers to the number of cancer survivors who were alive at the end of 2019, and had been diagnosed with their cancer in the previous 25 years (i.e. 1995-2019).

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	378	271	649	176	166	342	554	437	991
1-5 years	897	677	1,574	621	517	1,138	1,518	1,194	2,712
5-10 years	732	536	1,268	652	570	1,222	1,384	1,106	2,490
10-25 years	533	479	1,012	824	832	1,656	1,357	1,311	2,668
0-25 years	2,540	1,963	4,503	2,273	2,085	4,358	4,813	4,048	8,861

Trends in 10-year prevalence - Colorectal cancer, Patients alive at end of each year from 2010-2019

- Among males the number of survivors from colorectal cancer who had been diagnosed within the previous ten years (10-year prevalence) increased by 7.1% from 3,227 survivors in 2014 to 3,456 survivors in 2019.
- Among females the number of survivors from colorectal cancer who had been diagnosed within the previous ten years (10-year prevalence) increased by 8.6% from 2,521 survivors in 2014 to 2,737 survivors in 2019.

Year	10-year prevalence		
	Male	Female	Both sexes
2010	2,683	2,194	4,877
2011	2,844	2,305	5,149
2012	2,997	2,356	5,353
2013	3,107	2,464	5,571
2014	3,227	2,521	5,748
2015	3,300	2,584	5,884
2016	3,389	2,642	6,031
2017	3,369	2,640	6,009
2018	3,385	2,697	6,082
2019	3,456	2,737	6,193

Mortality

- During 2015-2019 there were 244 male and 209 female deaths from colorectal cancer each year.
- Colorectal cancer made up 10.5% of all male, and 10.0% of all female cancer deaths (ex NMSC).

Deaths by age at death - Colorectal cancer, Deaths in 2015-2019

- The median age at death during 2015-2019 was 75 for men and 79 for women.
- Risk of death from colorectal cancer was strongly related to age, with 52.9% of men and 60.8% of women aged 75 years or more at time of death.
- 6.4% of colorectal cancer deaths occurred among those aged under 55.

Age at death	Average deaths per year		
	Male	Female	Both sexes
0 - 54	17	13	29
54 - 64	34	24	58
65 - 74	63	45	107
75 +	129	127	256
All ages	244	209	453

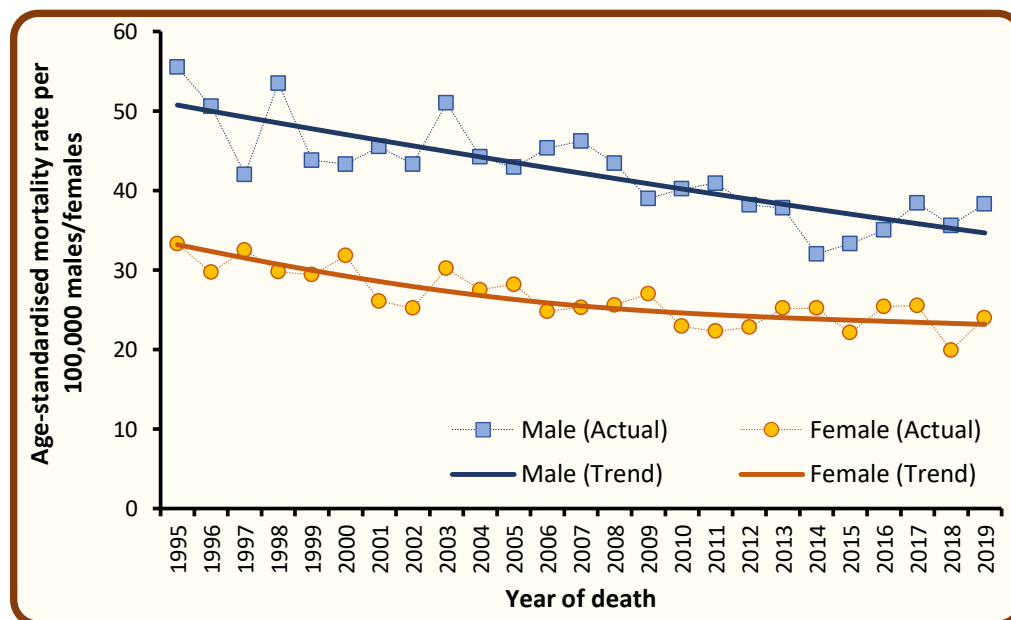
Deaths by year of death - Colorectal cancer, Deaths in 2010-2019

- Among males the number of deaths from colorectal cancer increased by 7.5% from an annual average of 227 deaths in 2010-2014 to 244 deaths in 2015-2019.
- Among females the number of deaths from colorectal cancer increased by 7.7% from an annual average of 194 deaths in 2010-2014 to 209 deaths in 2015-2019.

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Male	231	232	231	233	208	215	230	262	245	267
Female	180	179	187	210	214	191	224	227	181	223
Both sexes	411	411	418	443	422	406	454	489	426	490

Trends in age-standardised mortality rates - Colorectal cancer, Deaths in 1995-2019

- Among males age-standardised mortality rates from colorectal cancer decreased by 4.0% between 2010-2014 and 2015-2019 from 37.7 to 36.2 deaths per 100,000 persons years. This difference was not statistically significant.
- Among females age-standardised mortality rates from colorectal cancer decreased by 1.3% between 2010-2014 and 2015-2019 from 23.7 to 23.4 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 2019 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.