

5: Cancer of the Colon (C18)

Key Facts

- **New cases: 301 in males & 312 in females each year**
- **Levels are falling by 6 cases in males & 8 cases in females per year**
- **155 males & 162 females die annually: Annually 6 less deaths in males & 4 in females**
- **Survival has improved, now about 55% of males & females survive five-years**
- **1,194 males & 1,249 females diagnosed 1993-2001, still alive end of 2001**

Incidence

In 2001, colon cancer was the fourth most common cancer in males and females. On average, 301 males and 312 females were diagnosed as having colon cancer each year 1993-2001 representing approximately 7% of all cancers registered.

Age

The median age at diagnosis was 71 years for males and 73 years for females. Given the levels of disease in 2001, the risk of getting colon cancer before the age of 75 years was 1 in 35 for males and 1 in 54 for females (Table 5a). The average number of new cases increased with age for males and females, peaking at 70-74 years and 75-79 years respectively (Figure 5a). However, the age-specific rates beyond this age continued to increase, with males having consistently higher rates of disease than females.

Prevalence

In Northern Ireland on 31st December 2001, there were 1,194 males and 1,249 females alive who had colon cancer diagnosed between 1993 and 2001.

Deaths

Each year on average 155 males and 162 females died from colon cancer. In 2001, it was the third most common cause of cancer mortality in males and females. Given the levels of mortality in 2001, the risk of dying from this cancer before the age of 75 years was 1 in 83 for males and 1 in 163 for females (Table 5b).

Trends

Between 1993 and 2001, the EASRs for incidence of colon cancer in males and females decreased significantly ($P < 0.05$) by an average of 0.7 and 0.9 cases per 100,000 per year respectively (Figure 5b).

In the same period, both males and females demonstrated statistically significant downward trends in EASRs for mortality ($P < 0.05$ and $P < 0.01$ respectively). These corresponded to an average decrease in the mortality rate of 0.7 in males and 0.5 per 100,000 per year in females (Figure 5b).

Table 5a: Incidence of Cancer of the Colon in 1993 and 2001

	Males		Females	
	1993	2001	1993	2001
Number of Cases	290	314	321	268
Crude Rate per 100,000	36.3	38.1	38.5	31.1
Cumulative Risk (0-74yrs) (%) (Lifetime risk to 74 years)	3.0	2.9	2.4	1.8
Odds, 1 in:	33	35	42	54
EASR per 100,000 (95% CI)	40.5 (35.8, 45.2)	38.9 (34.5, 43.2)	32.1 (28.4, 35.8)	24.6 (21.5, 27.6)
% of all cancers	7	7	7	6

Table 5b: Mortality Due to Cancer of the Colon in 1993 and 2001

	Males		Females	
	1993	2001	1993	2001
Number of Deaths	170	143	181	125
Crude Rate per 100,000	21.3	17.3	21.6	14.5
Cumulative Risk (0-74yrs) (%) (Lifetime risk to 74 years)	1.6	1.2	1.1	0.6
Odds, 1 in:	62	83	89	163
EASR per 100,000 (95% CI)	23.7 (20.1, 27.4)	17.7 (14.8, 20.6)	16.3 (13.8, 18.9)	9.9 (8.1, 11.7)
% of all cancers	9	7	10	7

Figure 5a: Number of Cases and Age-Specific Incidence Rates per 100,000 of Cancer of the Colon (averaged over the diagnostic period 1993-2001) by Sex

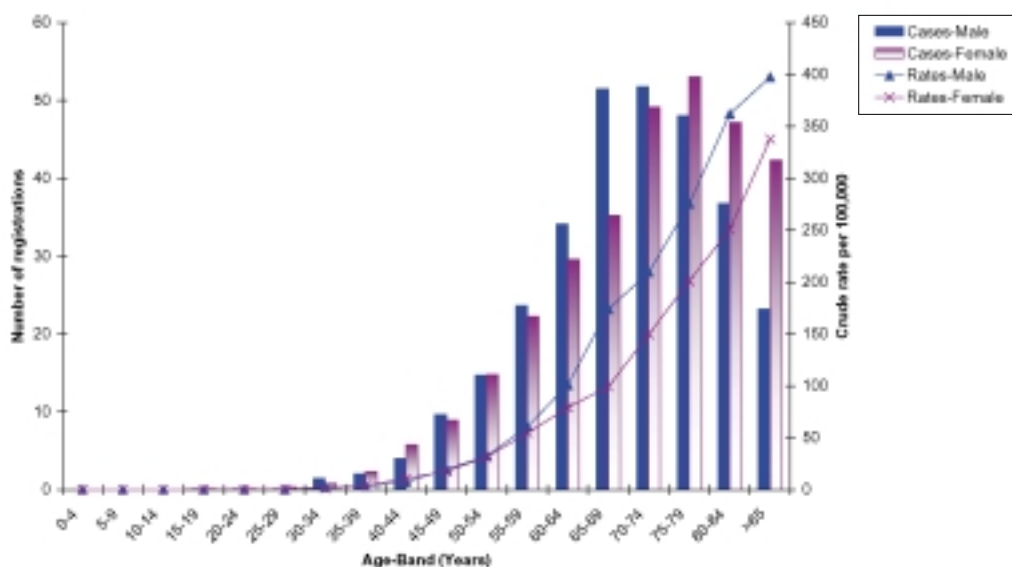
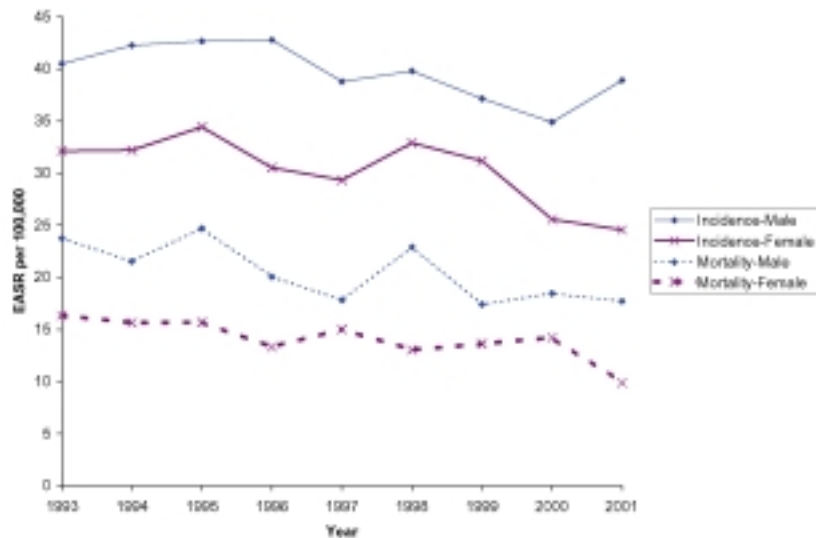


Figure 5b: European Age-Standardised Incidence and Mortality Rates of Cancer of the Colon (1993-2001) by Sex for All Ages

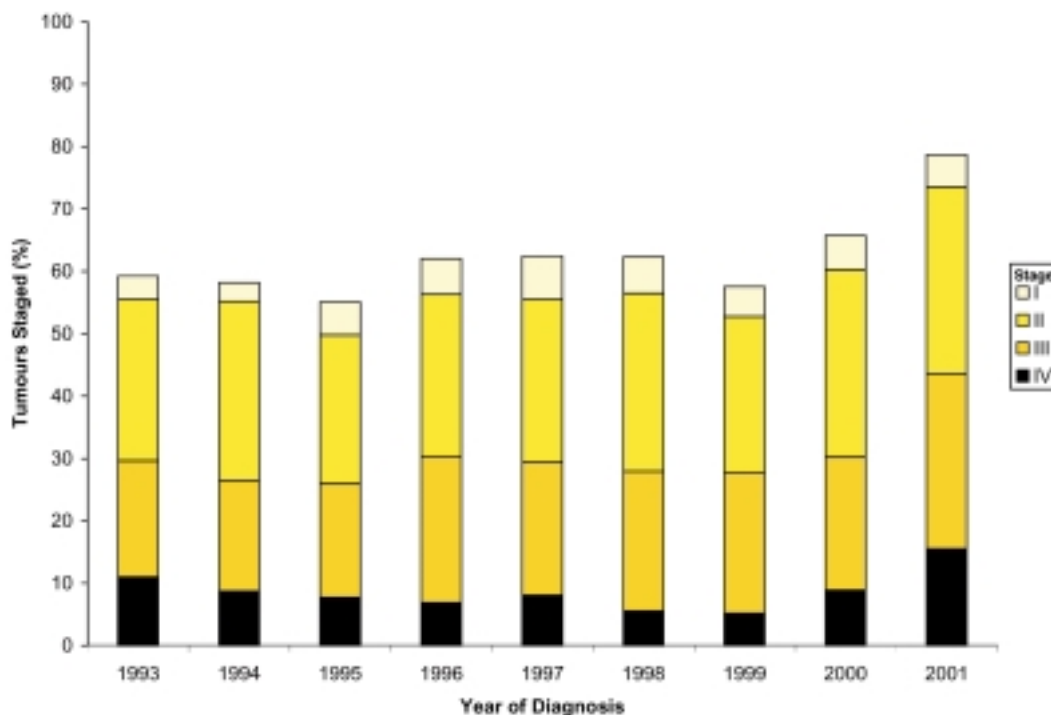


Staging

Staging information for colon cancers was available from two sources, histopathology reports, and the Northern Ireland Colorectal Registry, which was able to supply staging information on patients diagnosed from 1993 to 1999.

On average staging information was available for 62% of the tumours, which in 2001 were classified as Stage I (5%), II (30%), III (28%) and IV (15%), (Stage I being the earliest stage), equivalent to Dukes A, B, C and D respectively. Staging information was best recorded in 2001 due to an audit project carried out by NICR staff (41% unclassified in 1993 compared to 31% unclassified in 2001) (Figure 5c). Later Stage IV tumours are under-estimated as the Registry does not receive all the pertinent clinical information e.g. results of imaging techniques or clinical judgement.

Figure 5c: Percentage of Cancer of the Colon Cases by Stage and by Year of Diagnosis



Survival

The five-year survival rates were similar for males and females, with both sexes showing an improvement in survival in the later diagnostic period (1996-99), where almost 55% of males and females with cancer of the colon survived five-years (Table 5c, Figure 5d). However, survival is very dependent on the stage of presentation of disease (Table 5d, Figure 5e). Patients presenting with Stage I disease had a five-year survival rate of 97%, compared with 14% for patients with Stage IV disease.

The estimate for five-year survival of 14% for Stage IV tumours is higher than that reported for other countries¹. This figure may be an overestimate, as many of the cases which are "Unstaged" are likely to be severe Stage IV tumours which consequently have a very poor prognosis.

Table 5c: One and Five-year Relative Survival (95% Confidence Interval) for Cancer of the Colon Patients (15-99 years) Diagnosed in 1993-1995 and 1996-1999

Sex	Diagnosis Period	1-year (95% CI)	5-year (95% CI)
Males	1993-95	68.8 (65.3, 72.0)	46.3 (42.1, 50.3)
	1996-99	75.0 (72.0, 77.7)	55.8 (51.9, 59.5)
Females	1993-95	67.5 (64.1, 70.6)	46.0 (42.2, 49.8)
	1996-99	72.4 (69.5, 75.0)	54.0 (50.5, 57.4)

Figure 5d: Cancer of the Colon Survival by Period of Diagnosis and by Sex

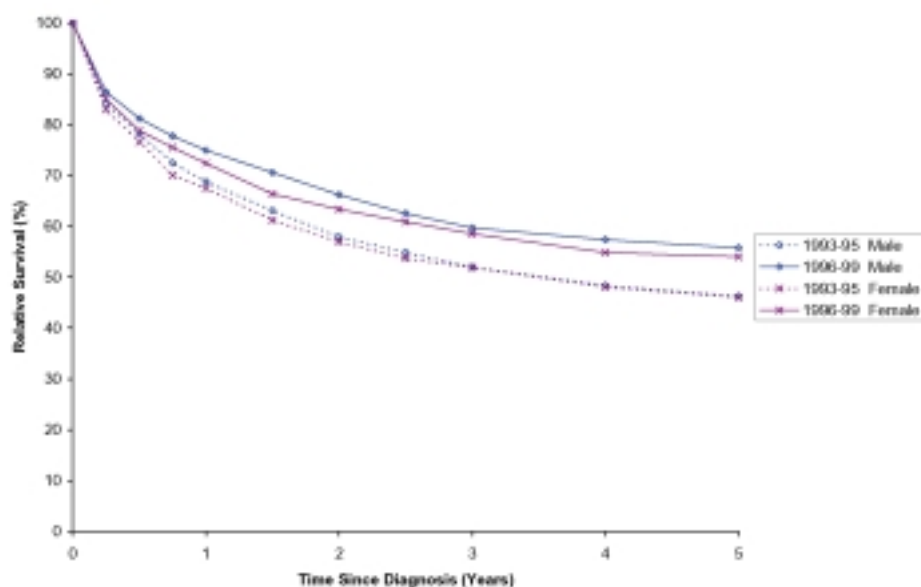
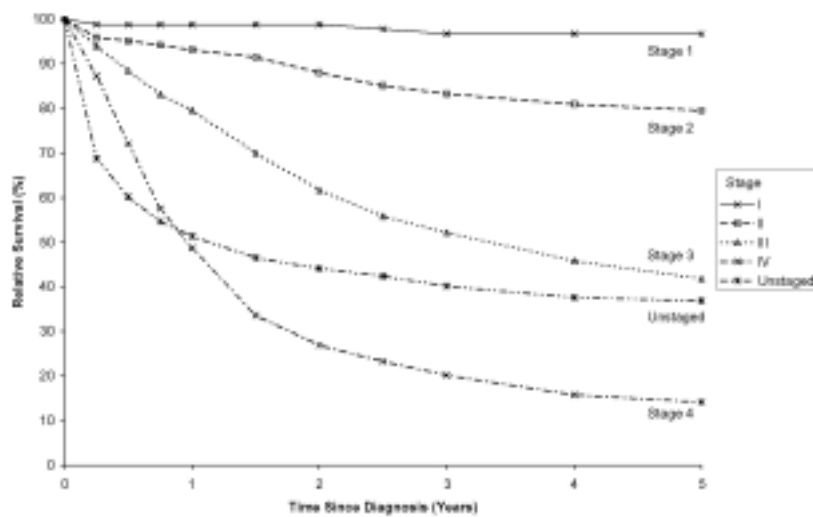


Table 5d: One and Five-year Relative Survival (95% Confidence Interval) for Cancer of the Colon (15-99 years) Diagnosed in 1993-1999 by Stage

Stage	1-year (95% CI)	5-year (95% CI)
I	98.8 (86.0, 99.9)	96.7 (84.4, 99.3)
II	93.1 (90.9, 94.8)	79.6 (75.9, 82.7)
III	79.6 (76.4, 82.4)	41.8 (37.7, 45.8)
IV	48.7 (42.8, 54.2)	14.1 (10.2, 18.8)
Unstaged	51.4 (48.7, 53.9)	36.9 (34.0, 39.8)

Figure 5e: Cancer of the Colon Survival by Stage



Treatment

Of those patients diagnosed in 2001, almost 80% went on to have surgery, 2% had radiotherapy and 32% had chemotherapy (Table 5e). Note patients may have undergone more than one treatment type.

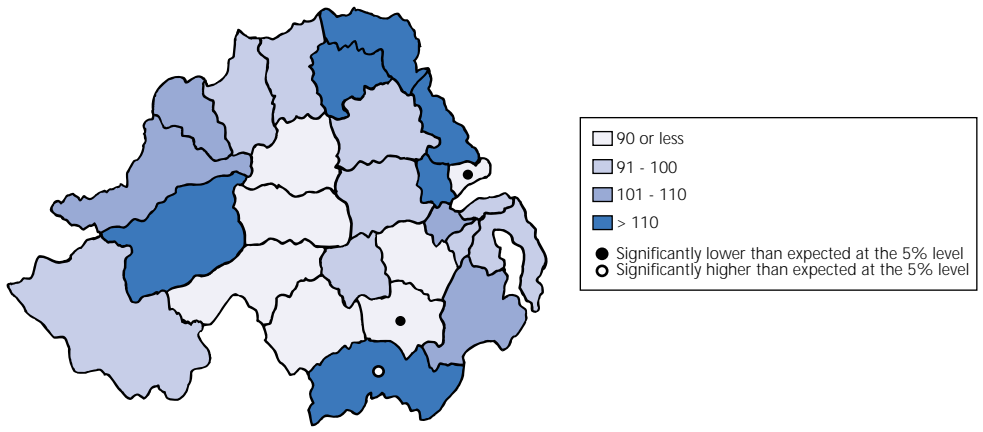
Table 5e: Treatment of Cancer of the Colon Patients Diagnosed in 2001 by Sex

	No. of cases (%)		
	Males	Females	Persons
Radiotherapy	8 (3%)	6 (2%)	14 (2%)
Chemotherapy	103 (33%)	84 (31%)	187 (32%)
Surgery	242 (77%)	219 (82%)	461 (79%)

Geographical Variation

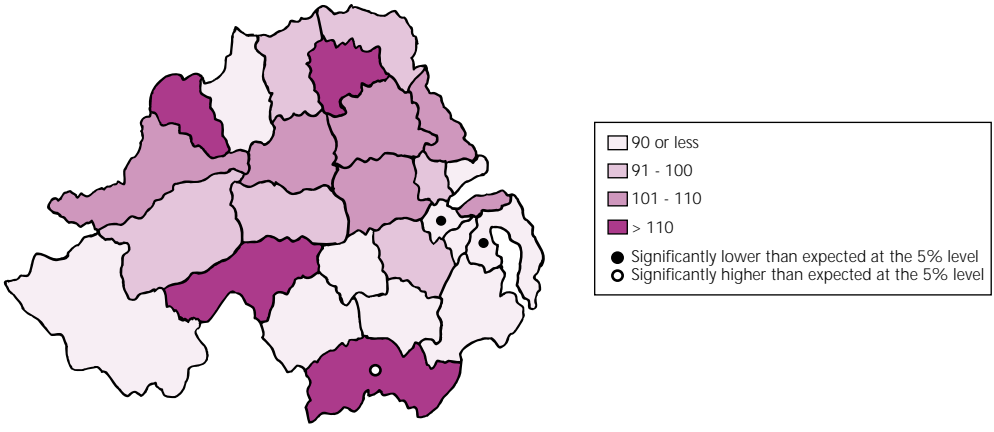
The EASRs for incidence of colon cancer were similar in each of the Health Boards across the years. However, males (Figure 5f) and females (Figure 5g) in Newry and Mourne District Council had higher than expected incidence of the disease, with SIRs of 121 (95% CI 102, 141) and 120 (95% CI 101, 139) respectively.

Figure 5f: Age-Standardised Incidence Ratios by District Council (1993-2001), Cancer of the Colon for All Ages in Males



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Figure 5g: Age-Standardised Incidence Ratios by District Council (1993-2001), Cancer of the Colon for All Ages in Females

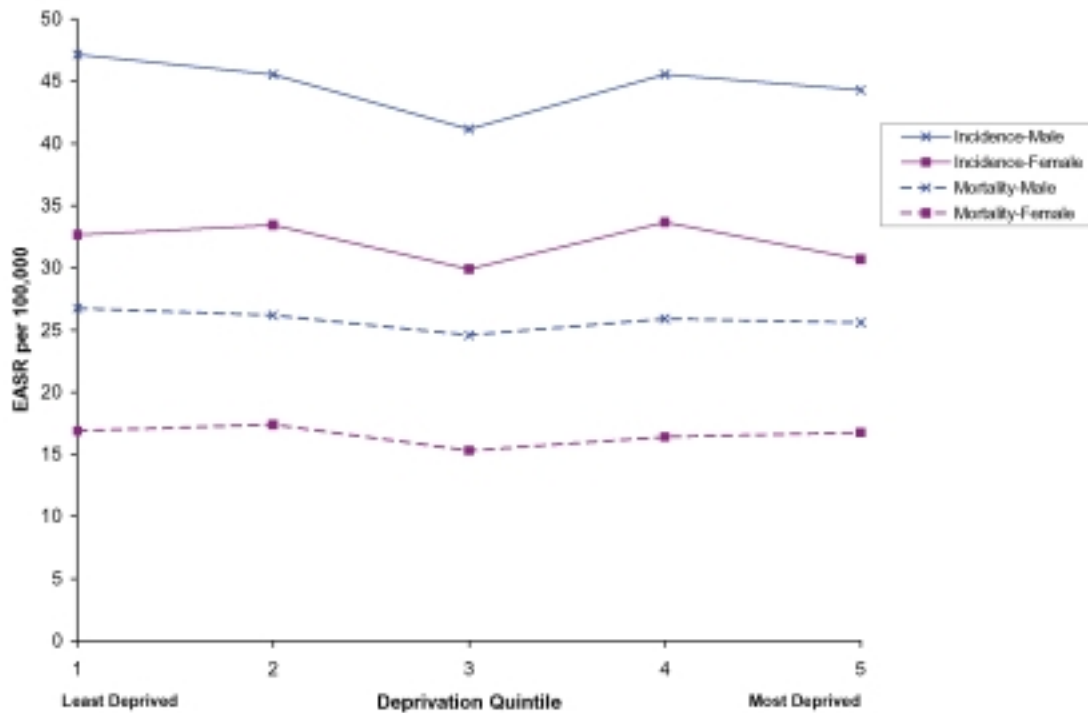


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Socioeconomic Trends

There were no statistically significant trends in the EASRs for incidence or mortality of colon cancer with deprivation in males or females (Figure 5h).

Figure 5h: European Age-Standardised Incidence and Mortality Rates of Cancer of the Colon by Deprivation Quintile and by Sex



Discussion

Cancer of the colon is more common in westernised countries than less developed countries, it accounts for 7% of cancers diagnosed in Northern Ireland. Rates of colon cancer here have consistently been higher than the rest of the UK, but are now falling in males and females. It is more common with increasing age, with half of the cases occurring in males over 71 years and females over 73 years. Up to approximately age 50 years rates are low but equal in males and females, while in 50 years and over rates are more common in males than females.

Over 90% of cases are adenocarcinoma. It is thought that these arise from adenomatous polyps which are common benign tumours.

Symptoms may vary, the commonest being abdominal pain, a change in bowel habit, anaemia and sometimes obstruction or perforation of the bowel.

Survival is directly related to the stage at which the tumour is detected, and has improved over time. A trial of screening using haemocult test of faeces to detect blood in stools is almost complete. This identifies persons at risk of having cancer and who should have further investigations. Reductions in mortality have been demonstrated in randomised trials^{2, 3, 4}.

Colon cancers are more common in people with chronic inflammatory disease of their bowels such as ulcerative colitis. Regular endoscopic examination of the colon is recommended in such cases.

Other high risk groups are those with a strong family history. This may be due to autosomal dominant inherited conditions such as Familial Adenomatous Polyposis (FAP). This accounts for 1% of colorectal cancers in western populations. These people have many benign polyps and a very high risk of cancer, so much so, that many have a total colectomy. Another condition is Hereditary Non-Polyposis Colorectal Cancer (HNPCC) which accounts for 5% of colorectal cancers. HNPCC is also associated with cancers of the endometrium, stomach and urinary tract.

Treatment of colon cancer is surgery with chemotherapy in selected cases. Survival is relatively good and has improved, with a five-year survival rate of around 55%. Higher survival is seen with earlier diagnosis and disease stage. There are at least 2,400 people living in Northern Ireland who have had a diagnosis of colon cancer.

Prevention

Evidence exists that diets with less red and processed meat and more vegetables are associated with a reduced risk of bowel cancer^{5,6}. There is some evidence that obesity may increase the risk of colon cancer, but not rectal cancer⁷. Physical exercise has been shown in epidemiological studies to reduce the risk of colon cancer by 40-50%⁸ but not rectal cancer. The mechanism by which this is thought to work is by increasing the immune functions and reducing bowel transit time⁹.

Some studies have shown that non-steroidal anti-inflammation drugs reduce the risk of colon and rectal cancer¹⁰.

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