



**Cancers of colon and rectum**

**Anatomical sites**

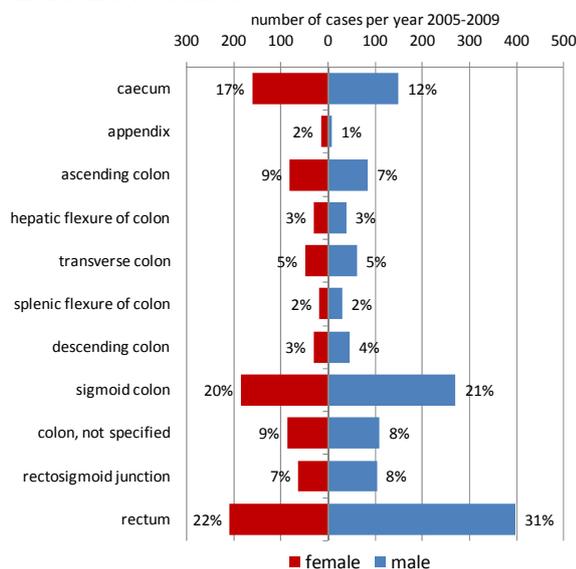
As the aetiology, presentation and clinical course of cancers of the colon, rectosigmoid junction and rectum are quite similar, cancers of these three sites have been combined in this report. Anal cancers, which are comparatively rare, and constitute a separate entity both aetiological and morphologically, are not included.

An annual average of 1445 colon cancers, 657 (45%) in females and 797 (55%) in males, 166 rectosigmoid cancers, 63 (38%) in females and 103 (62%) in males) and 606 rectal cancers, 209 (34%) in females and 398 (66%) in males, was registered between 2005 and 2009.

Sigmoid colon was the commonest site of colon cancers for both sexes (Figure 1). The distribution of cancers within the colon and rectosigmoid was similar for men and women, but rectal cancers were relatively more common in men. There was no change in the relative proportions of left- and right-sided colon cancers between 1994-1997 and 2006-2009.

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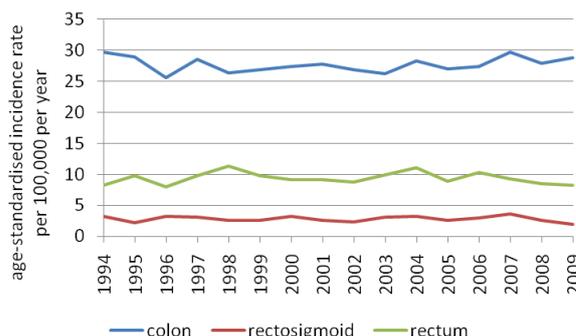
**Figure 1. Anatomical site of colorectal cancers, 2005-2009: number and % of cases**



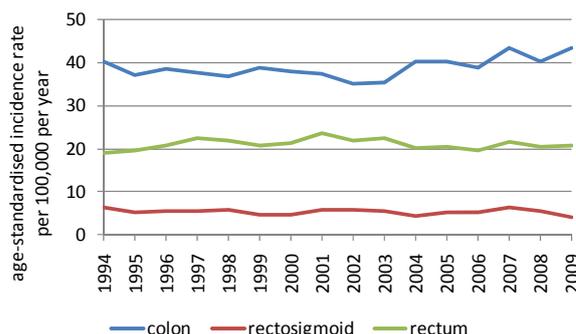
**Time trends**

There has been very little change in the incidence rate for cancers of the colon, rectosigmoid or rectum since 1994 (Figures 2 and 3). The incidence rate for cancer of the colon has risen by 1.2% annually for women and 2.5% annually for men since 2003. However, there have been falls of a similar magnitude in rectosigmoid and rectal cancers over the same period, so this may be a result of improving anatomical localisation through endoscopy and imaging.

**Figure 2. Colorectal cancer incidence rates by site, females, 1994-2009**



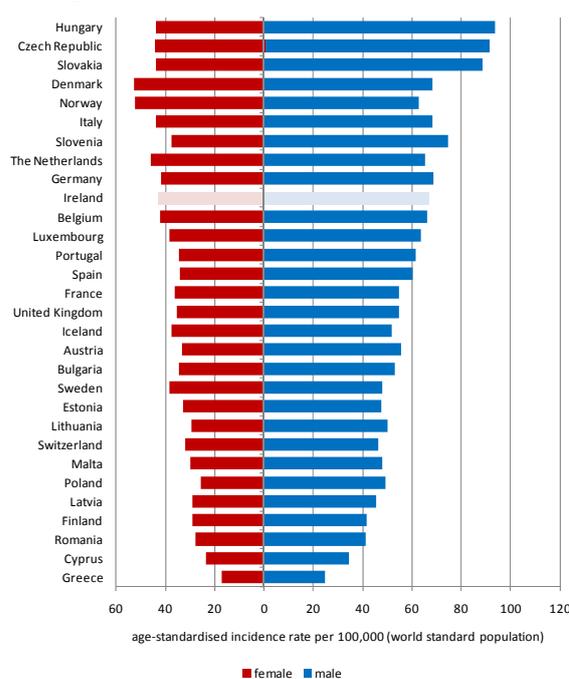
**Figure 3. Colorectal cancer incidence rates by site, males, 1994-2009**



**International variation in incidence**

Within Europe in 2008, the highest incidence of colorectal cancer for men was in Hungary, Slovakia and the Czech Republic and for women in Denmark and Norway (Figure 3).<sup>1</sup> The lowest incidence, for both sexes, was in Cyprus and Greece. Apart from these, there was relatively little variation in colorectal cancer incidence across Europe.

**Figure 4. Estimated incidence of colorectal cancer, 2008 (world age-standardised rate)<sup>1</sup>**



**Histological types**

93% of cancers were adenocarcinoma, almost all of the remainder being of unspecified type. Just over 1% (24 cases

annually) were classified as carcinoid or other neuroendocrine tumours.

**Stage at diagnosis**

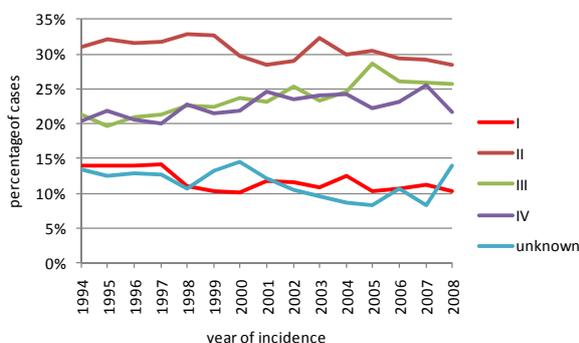
38% of colon cancers and 31% of rectal/rectosigmoid cancers were at stage I or II in 2008 (Table 1) while 48% of colon and 50% of rectal/rectosigmoid cancer were at stages III or IV.

**Table 1. Percentage of cases by stage 2008**

	I	II	III	IV	unknown
colon	10%	28%	26%	22%	14%
rectum/rectosigmoid	14%	19%	31%	19%	17%

The percentage of stage III (Dukes C) colon cancers increased by 2% annually and stage IV cancers by 1% between 1994 and 2008, while the percentage of stage I cancers (Dukes A) fell by 2% and that of stage II cancers (Dukes B) by 1% (Figure 5).

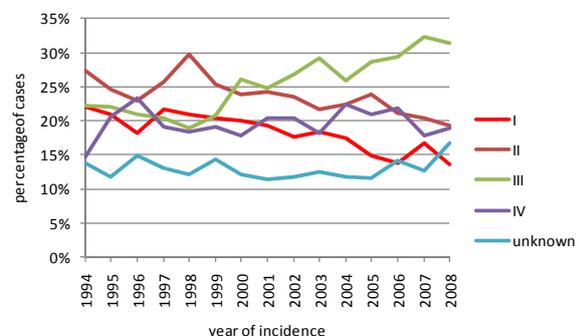
**Figure 5. Colon cancer, percentage of cases by stage, 1994-2008<sup>2</sup>**



Over the same period, the percentage of stage III rectosigmoid and rectal cancers increased by 3% annually and of stage IV cancers by 1% annually (Figure 6), while the percentage of stage I cancers fell by 3% annually, and of stage II cancers by 2%.

This increase in later stage colorectal cancers may be partly attributable to more thorough staging.

**Figure 6. Rectosigmoid and rectal cancer, percentage of cases by stage, 1994-2008<sup>2</sup>**



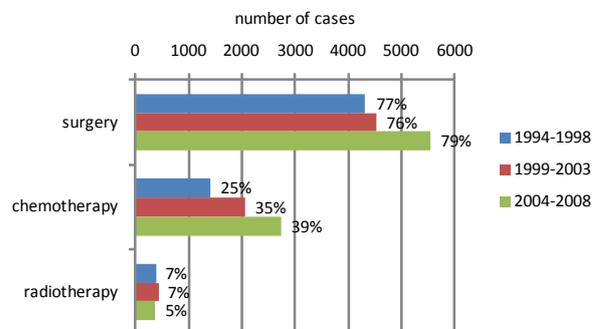
**Treatment<sup>2</sup>**

Almost 80% of patients with colon cancer had surgery and this changed little with time (Figure 7). The percentage having chemotherapy increased from 25% to 39% between 1994-1998 and 2004-2008, and the percentage having radiotherapy fell slightly, from 7% to 5%, in the same period.

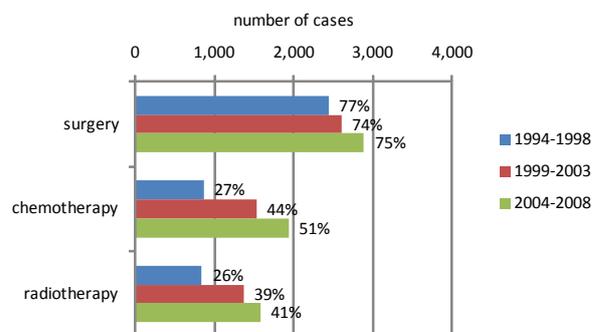
More information on cancer is available on our website [www.ncri.ie](http://www.ncri.ie)

Surgery for rectosigmoid and rectal surgery followed a similar pattern to that for colon (Figure 8), but there was a larger increase between 1994-1998 and 2004-2008 in the percentage having chemotherapy (from 27% to 51%) and a much higher percentage (increasing from 26% to 41%) having radiotherapy.

**Figure 7. Treatment for colon cancer, 1994-2008<sup>2</sup>**



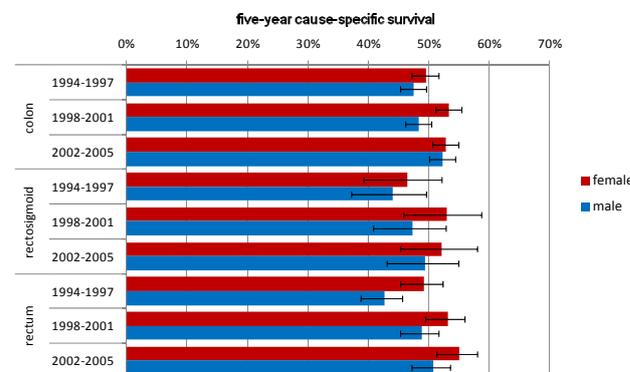
**Figure 8. Treatment for rectosigmoid and rectal cancer, 1994-2008<sup>2</sup>**



**Survival**

Cause-specific survival for cases of colon cancer diagnosed in 1994-2005 was 51% (95% confidence interval 50%-52%) at five years, for rectosigmoid cancer 48% (46%-51%) and for rectal cancer 50% (48%-51%) (Figure 9).

**Figure 9. Cause-specific five-year survival for cancers diagnosed 1994-2005**

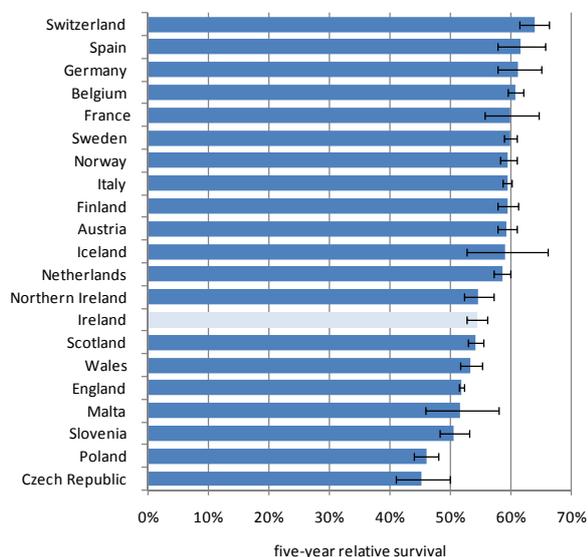


There was an improvement in survival for all colorectal cancers for both sexes between 1994-1997 and 2002-2005; the increases for colon cancer were statistically significant, but those for rectal and rectosigmoid cancer, either separately or combined, were not. Survival from colon and rectal cancer (but not rectosigmoid) in the period 1994-2005 was significantly better for women.

**International variation in survival**

Across Europe, five-year relative survival from colorectal cancer for patients diagnosed in 2000-2002 ranged from 45% in the Czech Republic to 64% in Switzerland (Figure 10).<sup>3</sup> Survival in Ireland was similar to that in the UK, and, at 54%, below the European median.

**Figure 10. Five year relative survival for colorectal cancer diagnosed 2000–2002<sup>3</sup>**

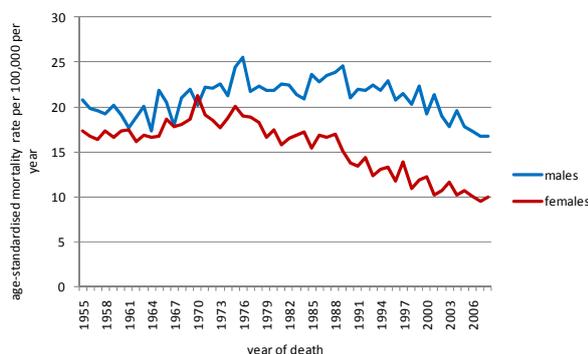


**Mortality**

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Age-standardised mortality rates from colorectal cancer for women have been falling by 2% annually since 1970 (Figure 11).<sup>4</sup> Although male and female mortality rates were similar up to 1970, this fall in female rates was not initially matched by a similar fall for males. However, male mortality began to fall in about 1989, and has been falling by 1% annually since then. The male mortality rate in 2008 was 75% greater than the female rate.

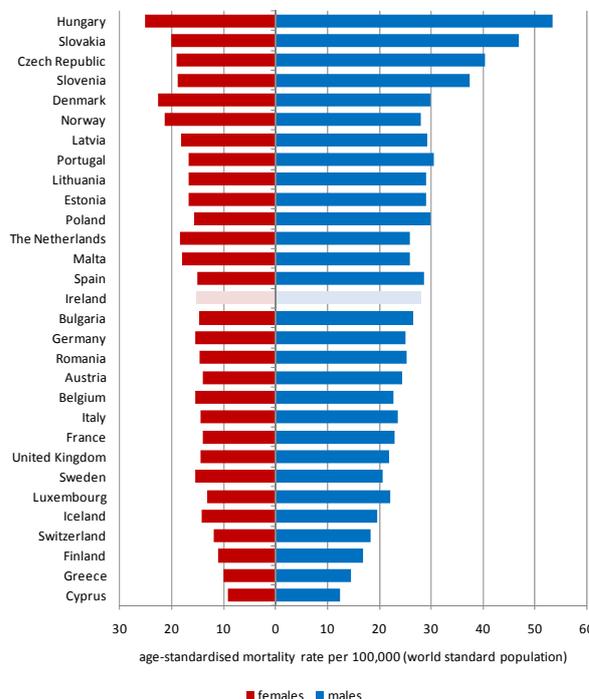
**Figure 11. Age-standardised mortality rate (world standard population) for colorectal cancer 1950-2008<sup>4</sup>**



**International variation in mortality**

The highest colorectal cancer mortality in Europe for both men and women was in Hungary (Figure 12)<sup>1</sup> and the lowest in Greece and Cyprus. Mortality for Ireland was close to the European median.

**Figure 12. Estimated mortality from colorectal cancer, 2008 (world age-standardised rate)<sup>1</sup>**



**References and notes**

1. European Cancer Observatory (ECO) <http://eu-cancer.iarc.fr/>
2. Stage and treatment data is incomplete for 2009 and is not reported on here.
3. *Recent cancer survival in Europe: a 2000-02 period analysis of EURO CARE-4 data.* Verdecchia A, Francisci S, Brenner H, Gatta G, Micheli A, Mangone L, Kunkler I; EURO CARE-4 Working Group. [Lancet Oncol. 2007 Sep;8\(9\):784-96.](http://www.lancet.com/2007/09/08/200709082)
4. WHO mortality database <http://www-dep.iarc.fr/WHOdb/WHOdb.htm>