

Dukes staging in screen-detected and symptomatic cases of colorectal cancer in the West Midlands region

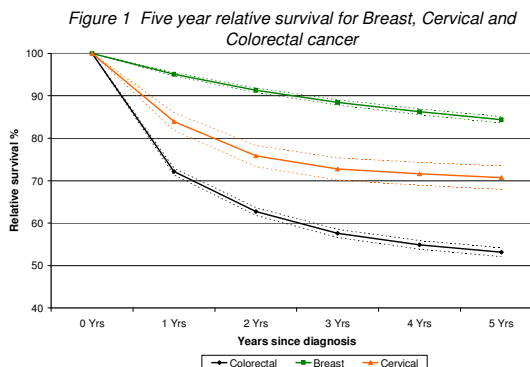
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Background

Colorectal cancer has low 5-year relative survival compared to breast and cervical cancer (Figure 1). Improving early detection through screening will help to increase survival rates and quality of life for patients diagnosed with bowel cancer. The NHS Bowel Cancer Screening Programme (NHS BCSP) began in 2006, and completed roll out in England in August 2010. We have compared the stage at diagnosis of screen-detected and symptomatic colorectal cancers in the West Midlands. Cancers detected at an earlier stage are easier to treat, have a lower chance of recurrence and better survival rates. Late stage cancers have a very low 5-year relative survival rate (6.6% for Dukes stage D compared to 93.20% for Dukes stage A¹).



Methods

- All colorectal cancers with ICD10 codes C18, C19 and C20 diagnosed between January 2006 and September 2011 were extracted from the cancer registration database
- Screen-detected cancers for the same period were extracted from the Bowel Cancer Screening System (BCSS), flagged on the registry list and duplicates removed
- 1,082 screen-detected and 20,612 symptomatic cancers were identified
- Of these, 904 screen-detected and 4,729 symptomatic cancers were diagnosed in people aged 60 to 69 years
- Staging data were obtained from cancer registry records
- Dukes staging was modified to include metastases as stage D
- Polyp cancers and blank or unknown data fields were included
- Screen-detected and symptomatic cases were compared to determine stage variation
- Survival data were obtained from the UKCIS

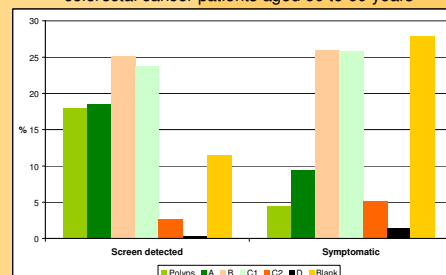
Results (Figure 2)

- Polyp cancers were more common in patients with screen-detected colorectal cancer (17.9% compared to 4.4% for symptomatic patients)
- In addition, a higher proportion of screen-detected cancers were Dukes stage A (18.5% compared to 9.4% of symptomatic cancers)
- A slightly smaller proportion of screen-detected cancers were Dukes B (25.2% compared to 26.0%)
- Dukes stage C1 cancers were found more frequently in symptomatic patients (25.8% compared to 23.8%)
- A higher percentage of C2 cancers were found in symptomatic patients (5.1% compared to 2.8%)
- Stage D tumours were more common in symptomatic patients (1.4% compared to 0.3%)

If the region's Bowel Cancer Screening Programme is to be effective, it must detect cancers at an earlier stage, or as benign polyps. Moving towards the earlier stages should increase the number of people surviving longer, as in the table below.

TNM Stage	Equivalent Dukes stage	5 year relative survival %
I	A	85
II	B	79
III	C	56
IV	D	7
Unknown	Unknown	64

Figure 2 Staging for screen-detected and symptomatic colorectal cancer patients aged 60 to 69 years



Discussion

- More earlier Dukes stage A colorectal cancers were found in the screening programme, most of which will be curable and have a high survival rate
- Polyp cancers which have even better prognosis were also more common in the screening cohort
- Symptomatic colorectal patients had more Dukes stage C1 and D cancers with lower predicted survival rates

Figure 3 Screen-detected cancers

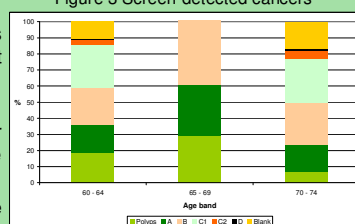
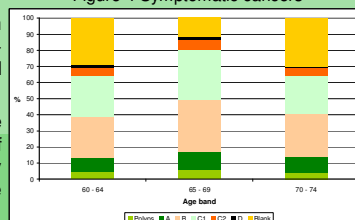


Figure 4 Symptomatic cancers



- Figures 3 & 4 show how staging varied with age band. For the screening cohort, the 60-64 age band will represent tumours found after one or two invitations to be screened
- As the screening programme matures we would expect to see a fall in the percentage of Dukes stage C1 cancers, which may predominate because the majority of people attended for screening for the first time
- In the 65-69 age band, there were no screen-detected cancers with a Dukes stage greater than B, suggesting that those who have attended previous screening rounds have a reduction in later stage cancers
- The full impact of screening will not yet be reflected in the 70-74 age band as the age expansion programme had not been rolled out in the time period studied
- Stage was evenly spread for symptomatic cases in Figure 4, with a higher proportion of cases in each age band with unknown stage

Conclusions

Our results show that those attending screening who are diagnosed with colorectal cancer have more early stage tumours than those coming through the symptomatic route, and that more polyp cancers are also detected in this cohort. As such, we can say the NHS BCSP is working towards its goal to reduce mortality from bowel cancer, as earlier stage cancers have better survival.

While this is an encouraging result, further work will need to be done to see if the early detection directly translates into a reduction in mortality. We would also hope to observe a reduction in Dukes stage C cancers when the programme is several years in to its incident rounds.

The data presented have a number of limitations:

There is only one full year's worth of data for the time period when the NHS BCSP's roll out was complete over the whole region, and, even in this time period, some screening centres had not started their first incident round or had age expanded to include 70 to 74 year olds.

Secondly, 11.5% of screen-detected and 27.9% of symptomatic cancers did not have a Dukes stage.

Finally, we do not report the effect of removing benign polyps during screening. It is estimated that 76% to 90% of colorectal cancers can be prevented by colonoscopy and polyp removal². The impact of their removal is likely to be highly beneficial. The WMCIU is currently collecting data on benign polyp removal as part of the evaluation of the recent Bowel Cancer Awareness campaign.

1. National Cancer Intelligence Network Colorectal Cancer Survival by Stage. NCIN Data Briefing, June 2009

2. Winawer S, et al. Randomized comparison of surveillance intervals after colonoscopic removal of newly diagnosed adenomatous polyps. The National Polyp Study Workgroup. N England J Med, (1993) 328: 901-906

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