

INTRODUCTION

The UK pilot studies using the faecal occult blood test to screen for colorectal cancer, demonstrated a positive impact on emergency surgery for colorectal cancer (CRC). The NHS Bowel Cancer Screening Programme was launched in the West Midlands in 2006. The aim of this regional audit was to assess the impact of screening on emergency CRC surgery in patients in the screening age group (60-69 years) and the population as a whole.

METHODS

Data for colorectal cancer patients diagnosed between 1998 and 2010 were obtained from the West Midlands cancer registration database. A cohort of 42,082 patients diagnosed with CRC as a first presentation was identified.

Demographics, mode of presentation (screen-detected or symptomatic) and treatment received were collated. Chi-squared statistic for testing observed trends and associated impacts were calculated for the two study groups.

RESULTS

Study cohort

Variable	Number (%)	Variable	Number (%)
All patients	42,082	Dukes stage	
Age (years)		A	4,665 (11)
<59	7,011 (17)	B	11,146 (26)
60-69	10,431 (25)	C	10,176 (24)
>70	24,640 (59)	D	7,043 (17)
Gender		Rare and unknown*	9,052 (21)
Male	23,651 (56)	Surgery type	
Female	18,431 (44)	<i>Minimally Invasive</i>	
Deprivation Quintile#		Polypectomy	617 (1)
Least Deprived	6,852 (16)	Laparoscopic	1,555 (4)
2	8,807 (21)	<i>Routine</i>	
Average	8,915 (21)	Surgical resection	28,137 (67)
4	8,253 (20)	No surgery	11,773 (28)
Most Deprived	9,255 (22)	Admission type	
Anatomical site		Elective	23,692 (78)
RC & TC	11,839 (28)	Emergency	6,617 (22)
LC	12,751 (30)	Presentation type	
Rectum	12,940 (31)	Screen-detected	755 (2)
Unspecified and overlapping	4,552 (11)	Symptomatic	41,327 (98)

Income Domain of Indices of Multiple Deprivation (2007)

* Includes carcinoids, sarcomas and tumours with an unknown stage

Figure 1. Patient and tumour characteristics

CRC patients in the West Midlands were more likely to be male (56%), elderly (59% aged 70 years and over), and deprived (44% in quintiles 4 and 5) (Figure 1). The majority (41%) of patients had later stage (Dukes C & D) tumours. Overall 67% of patients underwent surgical resection, with 78% of these having an elective procedure.

Trends in surgery type and post-operative mortality

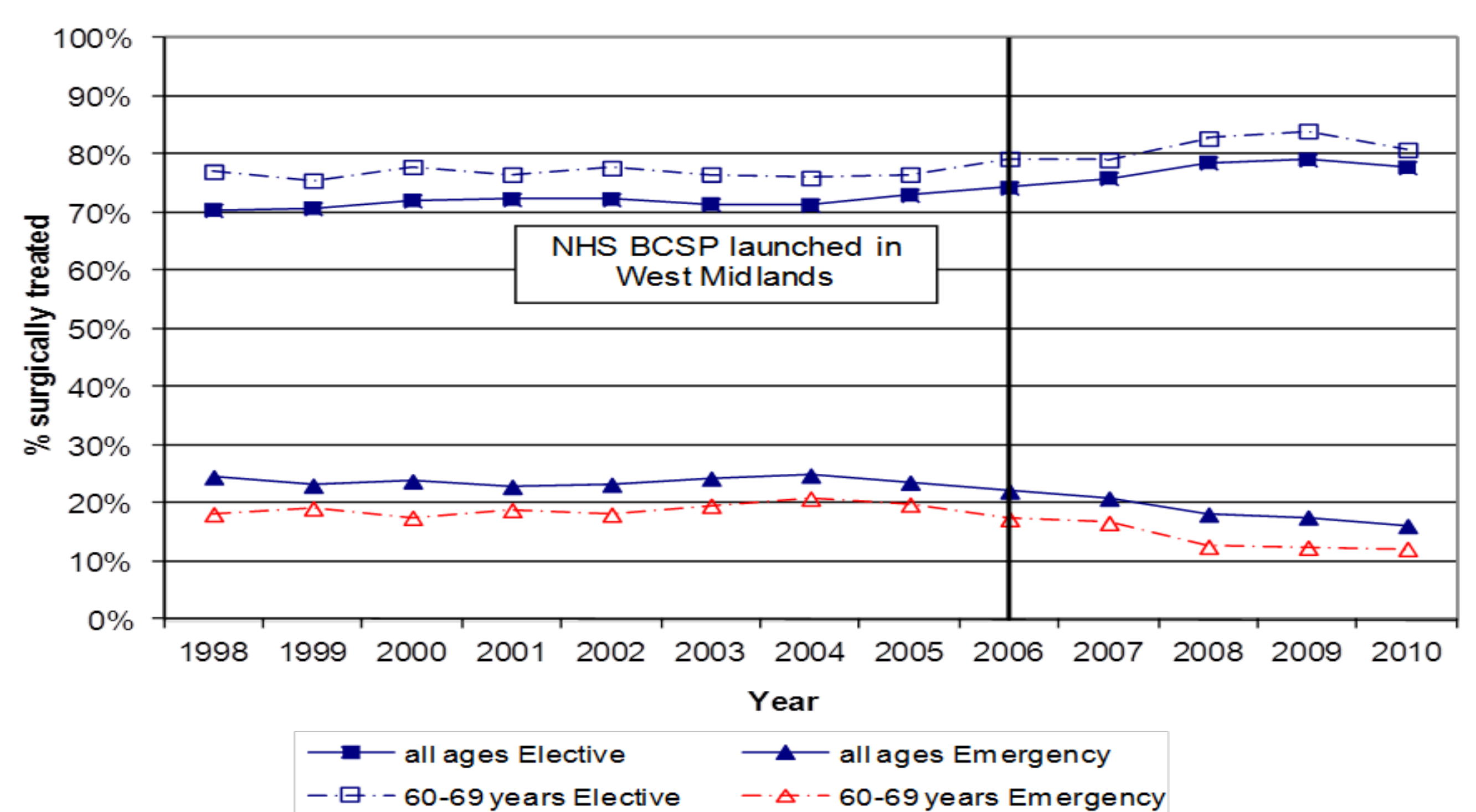


Figure 2. Trends in surgery type in patients aged 60-69 at diagnosis and for all ages

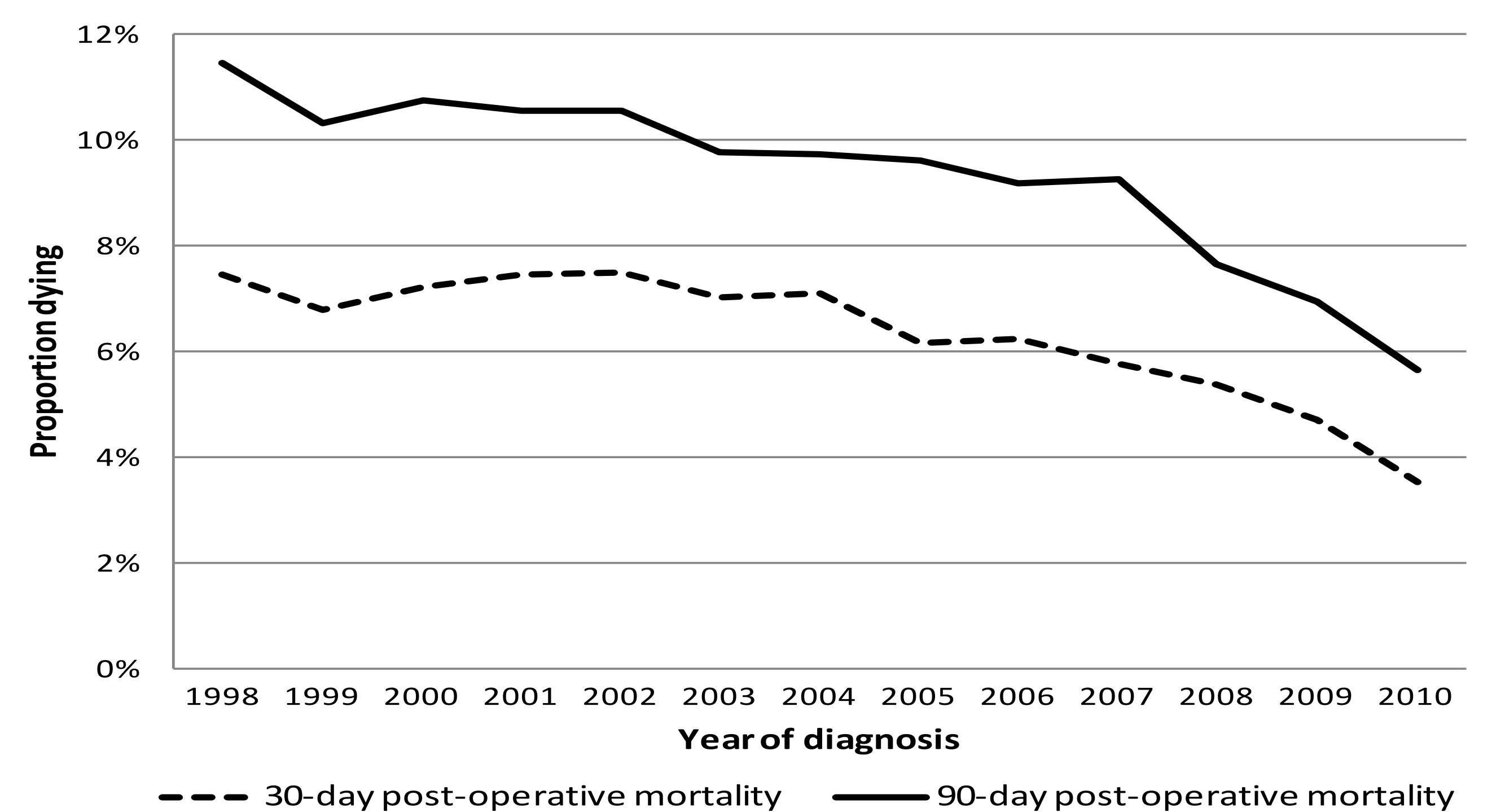


Figure 3. Trends in 30 and 90-day post-operative mortality

RESULTS

Of the 42,082 patients, 30,309 (72%) were recorded as having received surgical treatment for CRC. In this surgically treated group, 22% (n=6,617) were treated as emergency admissions. 2.4% (n=716) of the surgically treated cohort presented through the screening programme. In the screen-detected cohort, the primary method of treatment was through elective intervention, consistent with the diagnosis of earlier stage tumours.

Prior to 2006, the proportion of cases undergoing emergency surgery each year remained steady at a mean of 23.8% (19.1% in the 60-69 years screening age group) (Figure 2). Following the introduction of screening, the emergency surgery rate fell each year reaching 16.1% (p<0.001) overall in 2010 and 12.2% in the screening age group, [p<0.001]. Decreases in emergency surgery were accompanied by decreases in 30-day and 90-day post-operative mortality (Figure 3).

CONCLUSIONS

Our data suggest that the NHS Bowel Cancer Screening Programme has had a positive impact on reducing emergency surgery for CRC cancer in the West Midlands. Patients with screen-detected CRC have smaller, earlier stage tumours which require less invasive treatment. Patients who present through the screening programme have planned elective treatment, which is associated with a reduction in 30-day and 90-day post-operative mortality and with improved long-term survival.