

# Risk of surgery for inflammatory bowel disease: record linkage studies

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## This month's paper

"Mortality in patients with and without colectomy admitted to hospital for ulcerative colitis and Crohn's disease: record linkage studies" by Stephen E Roberts and colleagues (*BMJ* 2007;335:1033-6; doi: 10.1136/bmj.39345.714039.55).

### Abstract

**Objective**—To compare mortality outcomes in the three years after elective colectomy, no colectomy, and emergency colectomy among people admitted to hospital for inflammatory bowel disease, to inform whether the threshold for elective colectomy in clinical practice is appropriate.

**Design**—Record linkage studies.

**Setting**—Oxford region (1968-99) and England (1998-2003).

**Participants**—23 464 people with hospital stay for more than three days for inflammatory bowel disease, including 5480 who had colectomy.

**Main outcome measures**—Case fatality, relative

survival, and standardised mortality ratios.

**Results**—In the Oxford region, three year mortality was lower after elective colectomy than after either no colectomy or emergency colectomy, although this was not significant. For England, mortality three years after elective colectomy for ulcerative colitis (3.7%) and Crohn's disease (3.3%) was significantly lower than that after either admission without colectomy (13.6% and 10.1%; both  $P < 0.001$ ) or emergency colectomy (13.2% and 9.9%;  $P < 0.001$  for colitis and  $P < 0.01$  for Crohn's disease). Three or more months after elective colectomy, mortality was similar to that in the general population. Adjustment for comorbidity did not affect the findings.

**Conclusions**—In England, the clinical threshold for elective colectomy in people with inflammatory bowel disease may be too high. Further research is now required to establish the threshold criteria and optimal timing of elective surgery for people with poorly controlled inflammatory bowel disease.

Inflammatory bowel disease, which includes Crohn's disease and ulcerative colitis, is a debilitating and sometimes life threatening disease that affects about 250 000 people in the United Kingdom. Since the 1950s Crohn's disease has become more common. Each year 2000 colectomies are performed to treat inflammatory bowel disease, with varying risk depending on the cause of the disease. Colectomy carried out as an emergency measure also carries more risk than elective colectomy surgery, at least in the short term. Currently in the UK, elective colectomy is carried out on about 40% of patients who are admitted to hospital with a severe attack of ulcerative colitis.

Given the risk associated with emergency colectomy, the authors wanted to compare the risk associated with treating inflammatory bowel disease with elective surgery, emergency surgery, or no surgery, to see if the current threshold for elective surgery is optimal. Some studies have looked at this already but have used small numbers of patients and looked at only the short term risk immediately after surgery. In this study, the authors wanted to improve the evidence by looking at many more patients with inflammatory bowel disease drawn from the general population over a longer period.

### What did the authors do?

To look at large numbers of patients the authors used a record linkage method, which means that they linked different existing records about patients' health from different sources. By using records about the same patients from different times the authors could look at changes in patients' health over time: so in this case the record linkage provided longitudinal data. The records used were routine National Health Service data

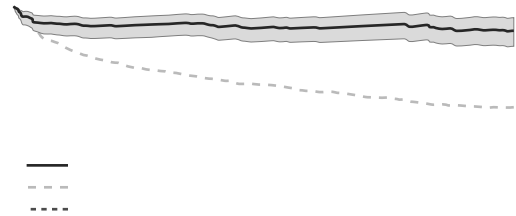
recorded from hospital admissions (hospital discharge abstracts), which the authors linked to mortality data from the Office for National Statistics for each patient.

The records covered the general population of one region of England (Oxford) from 1968 to 2000; a larger dataset for the whole of England compiled later covered the period 1998 to 2000. All patients who lived in these areas during the periods covered by the records, and who were admitted to hospital with inflammatory bowel disease, were included in the study. Some of the patients were admitted to hospital on an elective basis and subsequently had surgery, and for this study these patients were categorised as having had elective surgery. Other patients were admitted to hospital as an emergency and then received surgery; they were classed as having had emergency surgery. Other patients left hospital without having surgery.

For each patient admitted to hospital, their survival during the three years after admission was checked using the linked mortality data from the Office for National Statistics. In total, 23 464 patients were included in the study, 5480 of who underwent elective or emergency colectomy. Using large numbers of patients drawn from the general population means the data can be described as "population based." This is an advantage of the study because it means the findings are likely to apply to all patients with inflammatory bowel disease in the areas covered by the records and so are highly generalisable.

### Observational methods

This study uses an observational methodology because the authors used existing data that would be recorded anyway. There was no intervention as such because the authors did not change the usual care of patients



Relative survival during three years after elective colectomy, emergency colectomy, and no colectomy in England (1998-2000) for patients admitted for ulcerative colitis and for Crohn's disease, adjusted for age and sex and compared with general population. Survival in general population is 1. Shaded areas are 95% confidence intervals