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The short to medium term benefits of the Australian colorectal cancer screening program

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# The short to medium term benefits of the Australian colorectal cancer screening program



In Australia, colorectal cancer is the second most frequently diagnosed cancer and one of the most common causes of cancer-related death.[1] Evidence that bowel cancer screening reduces mortality through early detection and treatment[2] led to the introduction in 2006 of the Australian National Bowel Cancer Screening Program (NBCSP), offering faecal occult blood testing. The NBCSP has been progressively rolled out, from covering those aged 55 or 65 years in 2006 to screening every two years for all Australians aged 50–74 years by 2020.[3] During 2016–17, 41% of people invited to participate in screening did so.[4] A recent review of the NBCSP found that the risk of death from colorectal cancer was lower for invitees, and that those who had cancer were diagnosed at an earlier stage of disease.[5]

In Australia, jurisdictional cancer registries do not collect data on surgery-related morbidity. However, the Binational Colorectal Cancer Audit (BCCA) (https://www.bowelcanceraudit.com) has collected information since 2007 on the diagnosis, management, and outcomes of surgically managed Australian and New Zealand patients with colorectal cancer, as well as whether patients were identified by the NBCSP. BCCA data are voluntarily collected by 435 registered surgeons at 138 participating hospitals across Australia and New Zealand, covering about 24% of newly diagnosed cases of colorectal cancer in 2019.[6] We sought to determine whether patients with surgically managed colorectal cancer diagnosed through the NBCSP have better post-operative outcomes than those diagnosed in other pathways.

We undertook a cross-sectional analysis of de-identified BCCA data for patients aged 18 years or over who underwent surgery in Australia for colorectal cancer during January 2007 – December 2018. Outcome measures were inpatient and 30-day mortality; surgical complications; medical complications; return to theatre; and hospital length of stay. We undertook binary logistic regression to assess associations between screening and binary outcomes. The association with length of stay was assessed in ordinary least squares linear regression models. The Monash University Human Research Ethics Committee (project, 19327) and the BCCA Operations Committee provided ethics approval for our study.

Of 23 310 cases of colorectal cancer in the database, we could include 15 630 cases with data on cancer type and screening status in our comparison of demographic and

clinical characteristics. A larger proportion of patients identified by the NBSCP than of otherwise identified patients were men (58% *v* 54%); their mean age (64 years, standard deviation [SD], 7 years *v* 69 years; SD, 14 years) was lower, and larger proportions had American Society of Anesthesiologists (ASA) scores in the low risk range (77% *v* 59%), were from lower socio-economic status areas, had presented for elective surgery (96% *v* 85%), had less advanced cancer stage disease (stages 0–II: 69% *v* 63%), and underwent minimally invasive surgery (80% *v* 66%) (Box 1).

Data on adjusting variables and outcomes were available for the 11 366 cases included in our logistic regression models. NBSCP-detected patients were less likely to have post-operative surgical (adjusted odds ratio [aOR], 0.83; 95% confidence interval [CI], 0.69–0.99) or medical complications (aOR, 0.75; 95% CI, 0.59–0.94); their length of stay was also briefer (adjusted mean difference, –1.56 days; 95% CI, –2.06 to –1.06 days). Post-operative mortality and return to theatre rates were similar for screened and other patients (Box 2).

Our analysis of BCCA data indicates that, in addition to the lower long term mortality associated with the NBCSP,[5] short term post-operative benefits are also evident that should be taken into account when promoting the program. Our study reinforces calls to improve participation rates in the national screening program by eligible participants to optimise the value of this critically important initiative.

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