

Providing colonoscopy services for the National Bowel Cancer Screening Program

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There are many ways of freeing up and making maximal use of existing colonoscopy resources

The Australian health care system is a complex mix of service providers, variably responsive to the demands placed upon them, and sometimes with limited flexibility, given resource and bureaucratic constraints. So, since the Australian Government Department of Health and Ageing introduced national screening for bowel cancer, based on incontestable evidence of reduction of mortality from colorectal cancer, there have inevitably been some uncertainties about whether the health care system can cope. In particular, there is concern about the follow-up and management of participants with positive faecal occult blood test (FOBT) results. Follow-up and management will be delivered through “usual care”, without any program-specific funding. How will this affect the health care system?

The crux of the problem is that the Australian Government’s program — initially, the offer of an FOBT to Australians turning 55 or 65 years of age between May 2006 and June 2008 — will generate a need for extra colonoscopies. In 2005, there were 423 510 Australians who turned 55 or 65 years of age.¹ With a 45% participation rate (the participation rate in the pilot program), and a 6% FOBT positivity rate, 11 484 colonoscopies will be needed over the first year. In my own public hospital catchment, where about half of the population has private health insurance, we estimate that this will mean an extra three to four colonoscopies per week for the initial roll-out, rising to 50 when, in 2016, FOBTs will be offered to all people aged 55–74 years. This estimate includes follow-up colonoscopies for those with adenomas detected during screening. These figures equate to a need for one extra dedicated endoscopy theatre.

Shifting the (outpatient) load to the federal government through service arrangements between state and federal governments will protect the state purse from some of the burden, but 30%–50% of the load will still fall on the public sector. Estimates of this proportion vary, depending on state or federal perspectives, and will likely change as such arrangements unfold across the states. Some states, particularly Queensland, Western Australia and New South Wales, are already well advanced in addressing the impending load through, for example, commitment of state resources for non-insured patients to service the non-medical facility costs of delivering services by private providers. Other states have proved less responsive and willing to commit resources in this or other ways.

But what can be done at the local level, and why should state and federal health departments shoulder the entire burden? The article by Viiala et al in this issue of the Journal (*page 282*) and other Australian reports shed light on the problem and provide some guidelines.^{2–4} Direct management of waiting lists will free up colonoscopy resources. In particular, there is evidence that National Health and Medical Research Council guidelines are not being rigorously applied and colonoscopies are being ordered too frequently, both in the private and public systems, for surveillance of patients after adenoma and cancer detection and for screening of

those with a family history of colon cancer.^{3–5} The report by Viiala et al² is a timely reminder of the extra capacity, after careful management of waiting lists, that can be called on to meet the needs of the National Bowel Cancer Screening Program. Based on data from randomised controlled trials, a repeat colonoscopy after detection of an adenoma is rarely needed in less than 3 years, and most patients can be offered 5-yearly surveillance.⁶

Adequate staffing is critical. At present, most states are identifying any excess capacity in their endoscopy services, and some are encouraging endoscopy nurses back into the workforce, with appropriate consideration of their needs. In Australia, training of endoscopists is well developed and monitored, and now accredited by the Conjoint Committee (of the Royal Australasian College of Physicians, the Royal Australasian College of Surgeons and the Gastroenterological Society of Australia) for Recognition of Training in Gastrointestinal Endoscopy. However, there is room for increased efforts to monitor quality and competence, and to improve training standards. This has been strikingly effective in the United Kingdom.⁷ Recognition of the changing demography of disease, and a matching of resources to these changes, needs informed high-level hospital management decisions. Colorectal cancer continues to increase in incidence, while the prevalence of other common diseases is decreasing. As has already occurred in some settings, it should be possible to spread the load across both private and public facilities, with appropriate jurisdictional contractual agreements between federal and state governments, and optimal use of existing facilities and personnel. Any opportunities for funding extra services should be quickly identified by hospital administrators to enhance service capacity.

Categorisation of waiting lists according to the likelihood of a diagnosis of cancer or advanced adenoma with respect to the indication for the colonoscopy is an important principle. The government’s choice of immunochemical testing for faecal occult blood, with a 6%–8% overall rate of positive test results, offers, on the evidence of receiver operating characteristics, the best balance between sensitivity and specificity. The National Bowel Cancer Screening Pilot Program, using the same test, identified cancer in 5.3% of patients with positive FOBT results and an additional 13.9% with advanced adenomas. In the report of Viiala and colleagues, two of 14 patients with a positive FOBT result had colorectal cancer, a similar proportion to those presenting with iron deficiency/anaemia.² As Viiala et al point out, these figures must lead to a high prioritisation of patients with positive FOBT results, approaching or matching other categories with high probabilities, such as radiological or clinical findings indicative of colorectal cancer.

Curiously, there appears to be, if anything, an inverse relationship between duration of symptoms, or time on a waiting list, and cancer stage at diagnosis.^{8,9} Indeed, in the study by Viiala et al, there was no evidence of a link between prolonged colonoscopy waiting times and stage of carcinoma at diagnosis.² However, this

statistic should not be misrepresented — it can be explained by duration bias. Tumours detected by screening are more likely to be indolent, or have long dwell times, making them, at any time point (eg, of screening), more prevalent and more likely to be at an early stage. Aggressive tumours, with short histories and rapid stage evolution, are not as easily detected by periodic screening, or will have short symptom durations, leading to a statistical distortion in the relationship between symptom duration, or waiting-list duration, and stage at diagnosis. Nevertheless, for the individual tumour, it is axiomatic that detection at an earlier time point must be associated with at least an earlier stage of disease and logically a better outcome for the patient.

What other issues may arise in referral for colonoscopy within the National Bowel Cancer Screening Program? While it is obvious that the benefits of early detection through screening can only be enjoyed by participants, it should also be recognised that comorbidities, and age itself, may limit any increments to survival otherwise implicit in screening.¹⁰ The Australian Government's offer to Australians is irrespective of comorbidities. General practitioners have an important role — in assessing the comorbid status of their patients invited to participate in the national program; and in recommending non-participation if estimates of limited life expectancy or other factors would render follow-up of a positive test result by colonoscopy inappropriate. It may be a difficult call for a GP to advise a patient with three or four comorbidities who returns a positive FOBT result, but advice not to proceed with a colonoscopy may be appropriate.

No monitoring, evaluation or planning can be done without data. The National Bowel Cancer Screening Pilot Program told us that transfer of data on the outcomes of colonoscopy to the central register was inadequate. The exception was the pilot site in Mackay, Queensland, which dealt with this issue very successfully through a variety of processes, but, most notably, by providing personnel to monitor the pathway to colonoscopy of screenees with positive results. The way forward is clear. There must be investment in supervision of this vital part of the program — data transfer — at least until electronic and integrated data systems are universally available to do this. Responsibility for this rests with both state and federal governments.

The National Bowel Cancer Screening Program offers our best chance of having a significant impact on the outcome of colorectal

cancer, our second commonest cancer killer. From ministers to minions, we all have a responsibility to make it work.

Acknowledgements

I would like to thank Professor James St John and Professor David Hill for reviewing the manuscript.

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References

- 1 Australian Bureau of Statistics. Population by age and sex, Australian states and territories. Canberra: ABS, 2005. (Catalogue No. 3201.0.)
- 2 Viiala CH, Tang KW, Lawrance IC, et al. Waiting times for colonoscopy and colorectal cancer diagnosis. *Med J Aust* 2007; 186: 282-285.
- 3 Bampton PA, Sandford JJ, Young GP. Applying evidence-based guidelines improves use of colonoscopy resources in patients with a moderate risk of colorectal neoplasia. *Med J Aust* 2002; 176: 155-157.
- 4 Yusoff IF, Hoffman NE, Ee HC. Colonoscopic surveillance for family history of colorectal cancer: are the NHMRC guidelines being followed? *Med J Aust* 2002; 176: 151-154.
- 5 Australian Cancer Network Colorectal Cancer Guidelines Revision Committee. Clinical practice guidelines for the prevention, early detection and management of colorectal cancer (CRC). Sydney: The Cancer Council Australia and Australian Cancer Network, 2005. <http://www.cancer.org.au/content.cfm?randid=408243> (accessed Feb 2007).
- 6 Winawer SJ, Zauber AG, O'Brien MJ, et al. Randomized comparison of surveillance intervals after colonoscopic removal of newly diagnosed adenomatous polyps. The National Polyp Study Workgroup. *N Engl J Med* 1993; 328: 901-906.
- 7 UK National Health Service. Endoscopy global rating scale. <http://www.grs.nhs.uk> (accessed Feb 2007).
- 8 McDermott FT, Hughes ESR, Pihl E, et al. Comparative results of surgical management of single carcinomas of the colon and rectum: a series of 1939 patients managed by one surgeon. *Br J Surg* 1981; 68: 850-855.
- 9 Pescatori M, Maria G, Beltrani B, Mattana C. Site emergency and duration of symptoms in the prognosis of colorectal cancer. *Dis Colon Rectum* 1982; 25: 33-40.
- 10 Gross CP, McAvay GJ, Krumholz HM, et al. The effect of age and chronic illness on life expectancy after a diagnosis of colorectal cancer: implications for screening. *Ann Intern Med* 2006; 145: 646-653. □