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# An update on screening for colorectal cancer

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INSIDE



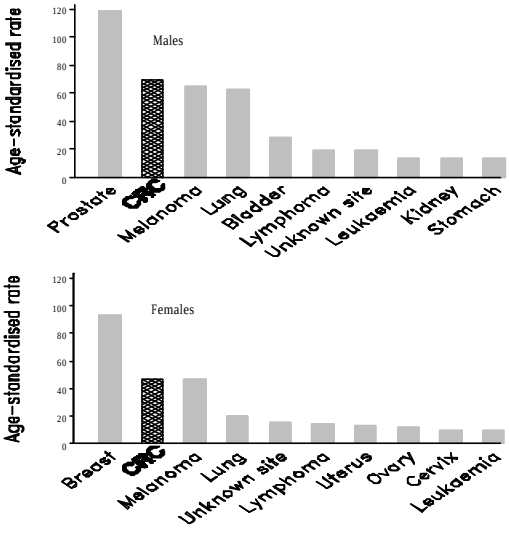
## Summary

- Queensland, in common with the rest of Australia, has incidence and mortality rates for colorectal cancer (CRC) that are among the highest in the world, similar to those of the United States, New Zealand and Canada.
- About 6% of males and 4% of females in Queensland will develop CRC.
- Survival depends on the stage of the disease at diagnosis. The five-year survival rate for those with localised disease is more than 90%, whereas, for patients with distant metastases, the five-year survival rate is only 5%.
- Tragically, for many patients, a delay in diagnosis is the main reason for the advanced stage of disease at presentation and associated poor outcome. Regular screening could have detected many of these cancers at an earlier, more favourable stage.
- Strong evidence from four high-quality studies has found that screening for CRC using faecal occult blood testing (FOBT) can reduce mortality. Currently, there is no national screening program for CRC in Australia. However, the Australian Health Technology Advisory Committee (AHTAC) has undertaken a comprehensive review of this issue and recommended commencing pilot or demonstration programs for average risk Australians aged older than 50 years. This should begin as soon as possible because the introduction of the national mammographic screening program (BreastScreen) has shown that the time from the initiation of demonstration programs to a fully functional national program is about 10 years.
- In short, there is great potential for control of CRC through early diagnosis and simple surgery with low morbidity and minimal cost. Advanced disease cannot be cured and requires the use of complex and costly treatment.

## Magnitude of the problem

In Queensland, as in the rest of Australia, colorectal cancer (CRC) is a significant health problem. It is the most common cancer diagnosed in women after breast cancer and the most common cancer in men after prostate (Figure 1).

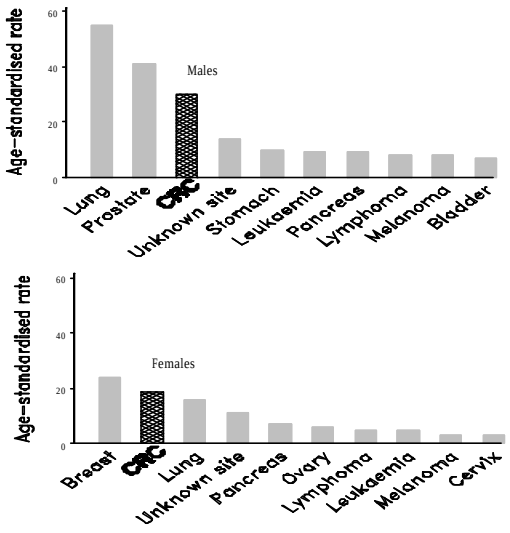
**Figure 1: Age-standardised incidence rates per 100,000 population, 10 most frequent causes of cancer, Queensland, 1996**




**(Source: Queensland Cancer Registry)**

CRC is the third most frequent cause of cancer death in men, after lung and prostate, and the second most frequent cause of cancer death in women, after breast (Figure 2).

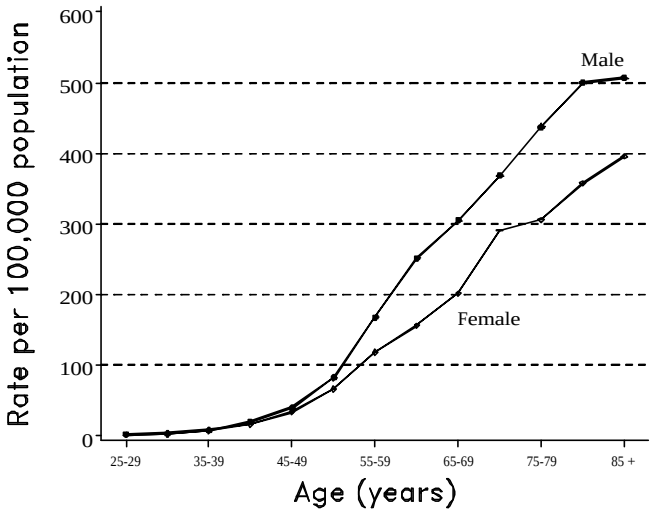
**Figure 2: Age-standardised mortality rates per 100,000 population, 10 most frequent causes of cancer deaths, Queensland, 1996**




**(Source: Queensland Cancer Registry)**

In Queensland each year about 2000 people are diagnosed with CRC and 820 people die from the disease. Men are at greater risk than women. About 6% of males and 4% of females in Queensland will develop CRC during their lifetime. The risk rises sharply and progressively after the age of 49 years (Figure 3).

**Figure 3: Age-specific incidence, Queensland, 1992 to 1996**

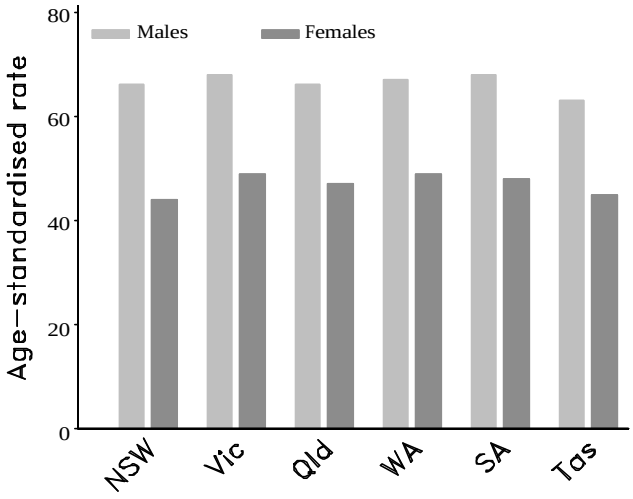



**(Source: Queensland Cancer Registry)**

## Interstate and international comparisons

There is little variability in incidence of CRC among Australian states (Figure 4).

**Figure 4: Age standardised incidence rates per 100,000 population by State, 1995**



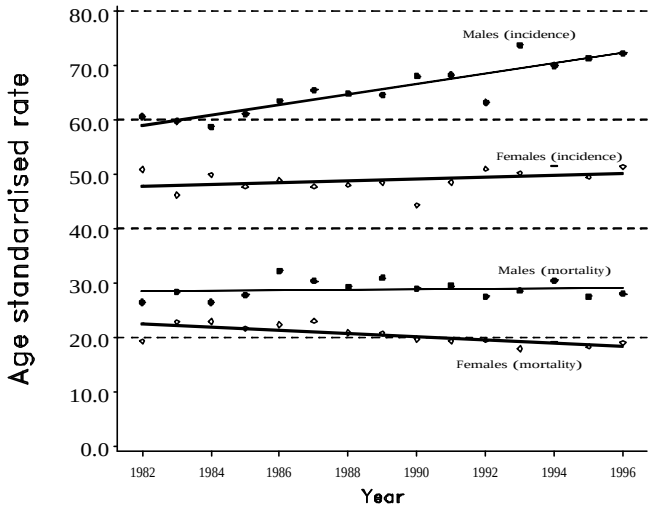

**(Source: AIHW, 1998)**

Internationally, the incidence of CRC varies by a factor of 20. In general, it is a disease of economically developed countries. Queensland, in common with the rest of Australia, has incidence rates for CRC that are among the highest in the world, similar to those of the United States, New Zealand and Canada, but higher than Europe. The lowest rates occur in Africa and Asia [Parkin, 1999].

## Trends

In Queensland, there has been a divergence between the incidence of CRC (generally rising, especially in males) and mortality (stable or falling) (Figure 5). This pattern has also been observed in NSW [Bell et al, 1997]. One plausible explanation is that survival has improved owing to better treatment. In particular, advances in peri-operative assessment, better surgical techniques and the use of adjuvant therapy are likely to have lengthened survival times.

**Figure 5: Age-standardised incidence and mortality rates per 100,000 population for CRC, Queensland, 1982 to 1996**




**(Source: Queensland Cancer Registry)**

## Population-based screening

Although survival is probably improving, the human and financial costs of CRC are still substantial. Further, survival depends on the stage of the disease at diagnosis. The five-year survival rate for those with localised disease is more than 90%, whereas, for patients with distant metastases, the survival rate is only 5% [Winawer et al, 1997].

This has prompted research efforts to evaluate the ability of a population-based screening program to detect cancer at an early stage when the costs and ill effects from treatment (especially colostomy) can be minimised. To date, faecal occult blood testing (FOBT) has attracted the most attention.

There is now strong evidence from four randomised controlled trials (level 1 evidence) to show that FOBT can reduce mortality in average-risk individuals without overt symptoms [Mandel et al, 1993; Kewenter et al, 1994; Hardcastle et al, 1996; Kronberg et al, 1996]. A meta-analysis found that those allocated to screening had a reduction in mortality of 16% [Towler et al, 1998]. When adjusted for attendance for screening the reduction was 23% for people screened annually.

FOBT aims to detect invisible amounts of blood in faeces. It involves collecting a small smear of faeces on a slide and sending it to a laboratory to be checked. If there is blood present, this may have come from a CRC. It is not a perfect test. In some cases it will miss a cancer and in others it will detect bleeding that does not come from a cancer. Nevertheless, people with a positive FOBT have 25 to 40 times the risk of having CRC compared with those with a negative test [Hardcastle et al, 1996; Kronberg et al, 1996].

Screening is, by definition, the testing of people without overt symptoms to identify a subgroup who would benefit from further investigation. People with a positive FOBT must be followed up with a more definitive test. Colonoscopy is usually recommended for follow up because it can detect almost all CRCs.

People with symptoms that suggest CRC (e.g., a change in bowel habit, obvious bleeding, abdominal pain or anaemia) should have appropriate diagnostic evaluation. They are not candidates for screening.

## Economic implications

The introduction of population-based screening for CRC would save lives and cost the nation tens of millions of dollars, money that might otherwise be spent on other public health programs. The central question is whether FOBT represents value for money compared with other programs. In the end this is a value judgement that can be guided by economic analysis.

For annual FOBT screening in people older than 50 years, the estimated cost per life-year saved is about $26,000 [Salkeld et al, 1996]. This lies between estimates of cost-effectiveness for the existing national programs for mammographic screening ($17,000) and cervical cancer screening ($37,500).

## Primary prevention

If it were possible to prevent CRC, and if prevention were achievable consistently and cost-effectively, the health-care dollar might be better spent in this area than on screening for the cancer after it has developed. Some epidemiologists have argued that dietary fibre, fruit and vegetables and physical activity have a protective effect. Some have also advocated pharmacopreventive measures such as taking aspirin or fish oil.

Unfortunately, experts still argue about the strength and consistency of the research findings. Consequently, it is difficult to make population-level recommendations based on current evidence about the effectiveness and practicality of primary prevention strategies for CRC [AHTAC, 1997]. This has led to continued concentration on secondary prevention (screening), which aims to detect cancer at an early, treatable stage rather than reducing the incidence of new cancers in the population [AHTAC, 1997].

## AHTAC recommendations on screening

Australian Health Technology Advisory Committee (AHTAC) undertook a comprehensive review of CRC screening and released its report in 1997. The main recommendations were:

- On the basis of published evidence, and subject to favourable preliminary testing, it is recommended that Australia develop a program for the introduction of population screening for CRC by FOBT for the average risk population aged older than 50 years.

- Given the uncertainties relating to the most effective means of implementing such a program and to the feasibility, acceptability and cost-effectiveness of such a program in the Australian setting, the program should commence with preliminary testing involving a number of pilot and feasibility studies.

## Attitudes to CRC screening

All screening programs require public and professional acceptance and support. Collett and Olynyk [1998], writing in the Medical Journal of Australia, argued that: 'the successes of mammographic and Pap smear screening programs ... are partly due to the ability of health professionals and special interest groups to capture the imagination of the public and the media, thus keeping the issues to the fore'.

The AHTAC report [1997] found that media coverage of FOBT has generally been positive, but the low level of coverage and the lack of sensationalism suggests that the topic has not captured the imagination of either the media or the public.

The Queensland University of Technology (QUT), in collaboration with Queensland Health (QH) and the University of Queensland (UQ), has recently conducted a survey on awareness and acceptability of FOBT among Queenslanders aged 40 to 80 years. Telephone interviews were obtained from 884 people. Random digit dialling was used; the response rate was 80%.

The survey found that respondents had a good knowledge of the important types of cancer. Specifically, 63 % of respondents knew that bowel cancer (CRC) is one of the most common types of cancer. However, awareness of FOBT was low, with only 28.2% of participants aware of FOBT. Only 7.6% of participants had FOBT previously and most of them found it acceptable. The intention to participate in FOBT screening was high (77.5%). The question asked was: 'Are you willing to participate in FOBT screening if health authorities recommend it?' The remaining 22.5% of people indicated that lack of symptoms, embarrassment, cost, lack of time and fear of further tests were all barriers to screening.

A survey in Western Australia found that 66% of GPs felt that screening was not indicated in average-risk people older than 50 years [Olynyk et al, 1998]. The investigators also found that there was a degree of confusion about the use of FOBT in the investigation of symptomatic patients. A survey of general practitioners in Queensland is under way (QUT, QH, UQ) and the results will be available by the end of the year.

*(The 1991 Australia Standard Population was used to age standardise the incidence & mortality rates in this circular)*

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