



BOWEL CANCER SCREENING



INSTITUTION NAME: Flinders University

CATEGORIES: Health, Science

TITLE: Overcoming the "yuck" factor in bowel cancer screening

Bowel (or colorectal) cancer is Australia's second biggest cancer killer, affecting 1 in 10 male and 1 in 15 female Australians in their lifetime with 2015 expected to yield over 17,000 new diagnoses of bowel cancer. Every year over 900,000 cases of colorectal cancer are diagnosed globally and in Australia alone an average of 80 people die from the disease each week. Along with lifestyle factors such as low dietary fibre intake, increasing consumption of red meat and processed foods, alcohol consumption, smoking and predominantly sedentary occupations, the most significant factor shaping the survival prognosis of those diagnosed is the stage at which their cancer is detected: early detection leads to a 95% survival rate with later detection costing lives. With the emphasis on early detection of cancers of the bowel (and the conditions that precede their development) the development of accurate and cost effective testing is a priority.

The research of Matthew Flinders Distinguished Professor and Global Chair in Gastrointestinal Health, Graeme Young has been pivotal in developing a fast, accurate and cost-effective screening test for colorectal cancers. However, having done so he and his team are not content to rest on their laurels with their latest research continuing to revolutionise the field of cancer detection and public access to tests.

Graeme Young has long been at the forefront of colorectal cancer research. His pioneering work in Melbourne in the 1980s explored and refined new screening for bowel cancer. This and subsequent work conducted at Flinders saw Professor Young refine the existing faecal occult blood test technology, using immunochemical developments, to prove that "FIT" tests, the now-internationally-accepted label he



coined to refer to the Faecal Immunochemical Test (FIT), were superior as a means to enable people to conveniently and easily collect a stool sample at home and mail the sample for analysis. His research proved that FIT was more accurate than the earlier test technology, and also that it was more acceptable. In addition, his team proved that a simple advance-communication strategy to raise awareness of the test and its value would increase population engagement. That strategy is now used around the world in national screening programs. These changes were major innovations that facilitated a world-first national scale screening program based on FIT for bowel cancer to be launched in Australia in 2006. With each test costing around AUD10 the test has improved early detection and saved the health system significant sums by decreasing the load on cancer clinics and hospital services.

The success of Australia's bowel cancer screening program is based comprehensively on Professor Young's research and application of a cheap and accurate test that people feel comfortable performing in their own homes. Having members of the public collect their own samples in the privacy of their own homes increases the likelihood of them engaging with a screening process which in turn decreases the number of people developing bowel cancer through early detection and treatment. To prove the value of the national program, his team was able to show that bowel cancers diagnosed in South Australia during the 5 years from 2006 as part of the national program, were twice as likely to be diagnosed at an early, highly-curable stage. This translates to many lives saved.

To address the diagnostic needs of people who are unwilling or unable to collect samples, Professor Young and his team working with CSIRO and Clinical Genomics at Flinders have created and validated a blood test for diagnosing bowel cancer, circumventing the need to handle faecal material all together. This new test, which detects changes in gene methylation characteristic of cancer, is conducted on a simple blood sample taken at any collection centre or doctor's clinic and can detect 65% of cancers at stage 1 (the earliest stage) and 73% of cancers at stage 2 or later. This test also looks promising for monitoring treatment of bowel cancer. By providing the option of a blood test for screening, we now have a strategy for overcoming the "yuck" barrier that some people experience with faecal testing. This exciting development is likely to further improve population screening and post-treatment monitoring of patients.

The Australian National Bowel Cancer Screening Program, championed by Professor Young and supported by his ground-breaking research in defining a cheap, acceptable and more-reliable test has been a model for bowel cancer screening processes the world over. This latest research ensures that Australia continues to lead the world in accessible cancer detection and prevention.

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