

## Screening for prostate cancer

By Kalli Spencer

Screening is a means of detecting potential conditions or risk markers for disease. These programs identify conditions which could turn into disease in the future. One could deduce that by doing this the disease can be detected and treated earlier, reducing morbidity and mortality. Counterintuitively, however, not all screening tests have been shown to benefit the person being screened, sometimes resulting in misdiagnosis, overdiagnosis, creation of a false sense of security and unnecessary adverse effects from treatments. Screening may be universal/population based where every person within a certain category is screened (e.g. colon cancer). It may be case based where smaller groups are screened based on specific risk factors (such as family history) or it may be opportunistic, where a PSA test was done as part of a routine investigative work up for other conditions and a high PSA is noted. Screening interventions are not designed to be diagnostic, and often have significant rates of false positive and negative results.

As per our previous blog, the current test of choice for PSA screening in Australia is the PSA test. In his review article, Professor Lawrentschuk from the Peter MacCallum Centre in Melbourne states that the threshold for what was once considered a normal PSA of  $<4.0$  ng/ml had recently dropped to  $<3.0$  ng/ml<sup>1</sup>. For a PSA test where normal is considered  $< 4.0$ ng/ml the test has a sensitivity of 21% and a specificity of 91%<sup>2</sup>. Sensitivity refers to the proportion of people who get tested that actually have a positive result. Specificity refers to the proportion of those who don't have the condition who receive a negative result. This implies that there is a high incidence of false positives and negatives with PSA testing. As discussed previously there are other causes of a high PSA than prostate cancer such as infections and inflammation (prostatitis), benign enlargement of the prostate and procedural (cystoscopies and biopsies). To prevent one prostate cancer death 1410 people would need to be screened and 48 would need to be treated<sup>2</sup>. PSA testing does reduce morbidity and mortality rates (25-40%) and can reduce the presentation of men presenting with metastatic disease (such as cancer spread to bones) by up to 70%<sup>3,4</sup>. The use of PSA velocity is an additional measurement that can improve screening, particularly of high risk disease hence reducing unnecessary biopsies and overdiagnosis<sup>5</sup>.

A Victorian study released this year from 180 GP practices between 2016-2018 among men aged 70–74 years, found 46% received at least two PSA tests within 2 years<sup>6</sup>. A total of 78 818 tests were recorded from a sample of 142 016 men aged 40 years and older – 29% from men aged 70 years and older. Professor Christopher Pearce from Monash University says that “in that older age group, there is an increase in symptoms, they are more likely to know someone who has had it, plus the guidelines are just guidelines, and there is still a lot of media stuff about screening. Also, this group is more likely to have a positive result, the recommendation of which is to repeat [the test].” Men in this group are also likely to see other practitioners or be admitted to hospital where a PSA may be added to the batch of blood tests. Professor Jon Emery, Professor of Primary Care Cancer Research at the University of Melbourne, commented: “What the electronic medical record data can't tell us is how much shared decision making is occurring in relation to the PSA tests being ordered. The bottom



line has to remain that GPs need to have a discussion about potential benefits and harms of a PSA test whatever the age of the patient.”

Prostate cancer screening has been a controversial topic in the medical community for many years. The thinking was that many of those who are diagnosed would have low risk cancer and having biopsies, numerous blood tests and imaging, possible unnecessary surgery or radiation and the potential side effects, as well as the anxiety of a cancer diagnosis and the associated costs were questioned. Many of those with low risk cancer would probably also die from diseases other than their cancer. However, more people now have longer life expectancies and also the first test done after concerning rising PSA tests is a Medicare-rebated MRI as opposed to a prostate biopsy as done in the past. This helps reduce costs and side effects associated with prostate biopsies done in theatre. For those that do go on to have prostate biopsy the current standard in Australia is the transperineal approach, which has negligible complication rates, particularly with regard to infection. Low risk cancers can also be treated with active surveillance protocols avoiding the need for treatment related side effects.

Historically the United States Preventative Services Task Force made a recommendation against prostate cancer screening in 2012. An increase in advanced disease was noticed and in 2018 the recommendations were amended to suggest PSA based screening on an individual basis for those between 55-69 years of age through an informed decision-making process. This was very similar to the Australian guidelines of the time. This prompted Sydney urologist Max Dias and his team, who are presenting at the American Urological Association’s 2021 meeting, to analyse the database for those patients presenting with prostate cancer between 2007-2018 in New South Wales. What they found was a significant decrease in PSA testing corresponding to a significant increase in more advanced disease being found at time of radical prostatectomy<sup>7</sup>.

According to the Prostate Cancer Foundation of Australia if someone does not have symptoms that could indicate a problem with their prostate, the current PSA testing guidelines recommend that:

- Patients should be offered the opportunity to discuss the benefits and harms of PSA testing before making the decision to be tested
- A digital rectal examination is not recommended as a routine addition to PSA testing done by a GP but is an important test when referred to a urologist or other specialist.
- Those at average risk of prostate cancer who decide to be tested should be offered PSA testing every 2 years from age 50 to 69
- Those with a family history of prostate cancer who decide to be tested should be offered PSA testing every 2 years from age 40 or 45 to 69 with the starting age depending on the strength of their family history
- The harms of PSA testing may outweigh the benefits for those aged 70 and older. Professor Mark Frydenberg from Monash University said it’s important to consider life expectancy in decision making as those who are unlikely to survive longer than 7–10 years, are ‘more likely to die with it rather than of it’ given the slow growth rate of many prostate cancers.

On the horizon individualised genetic blood testing will be widely available but disease could potentially be diagnosed per urine or semen samples. New diagnostic assays other than the PSA test will become available. Risk calculators and risk stratification algorithms are being investigated to more accurately assist with screening and prostate cancer diagnosis. Communication and education are ultimately the key take home messages when it comes to prostate cancer screening.

#### References

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#### **About the Author**

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Kalli is an internationally renowned Urological Surgeon, specialising in oncology and robotic surgery. He trained and worked in South Africa, before relocating to Australia where he has worked at Macquarie University Hospital and Westmead Hospital. His passion for what he does extends beyond the operating room, through public health advocacy, education and community awareness of men's health, cancer and sexuality.

Kalli has been involved with the Prostate Cancer Foundation of Australia for many years, advocating for improved cancer care and facilitating community prostate cancer support groups.