Has a Medicare rebate changed referral patterns for prostate MRI?

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AIM

This study sought to determine if there was any change in the referral source, indication or total number of prostate MRI's performed in one regional Victorian setting following the introduction of MBS items providing a rebate for mpMRI of the prostate.

INTRODUCTION

Prostate cancer is the second most commonly diagnosed cancer in men worldwide.[1] It is estimated to have contributed nearly 1.3 million new diagnoses and been responsible for over 358,000 deaths in 2018.[1] It is the most common solid organ cancer in men in Australia, with just under 19,000 new diagnoses in 2015.[2]

While it is clearly a highly prevalent disease, its natural history varies considerably. Many men with low risk disease can safely be observed, with treatment instituted only when evidence of progression is seen. This approach can prevent the overtreatment of clinically insignificant prostate cancer. The ability to determine which prostate cancers are significant is therefore vital to the safe and efficient care of men in whom prostate cancer is suspected or for those who have elected for active surveillance of previously determined low risk disease. This risk stratification has been traditionally done through an invasive prostate biopsy, usually via a trans-rectal ultrasound guided (TRUS) approach. This is not a benign procedure, with many potential risks, including bleeding, pain, infection and the risks associated with an anaesthetic or sedation.[3,4]

Advances in medical imaging, particularly in the area of Magnetic Resonance Imaging (MRI) have made it possible to detect and characterise prostate lesions in a non-invasive way, thereby potentially avoiding invasive biopsies in some patients and improving overall detection rates. The PRECISION trial demonstrated that MRI of the prostate with a targeted biopsy was superior to a routine non-targeted TRUS guided biopsy in men suspected of prostate cancer.[5] A recent metanalysis similarly established the superiority of MRI with or without targeted biopsy over a standardised template biopsy for the detection of significant cancers and for reducing the number of insignificant cancers being identified.[6]

In the Australian setting it has been shown that mpMRI of the prostate is a sensitive way of detecting clinically significant prostate cancers.[7,8] Toner et al demonstrated that, when using a cut off of PIRADS 3+, mpMRI of the prostate had a sensitivity of 90% and specificity of 27% for the detection of significant prostate cancer, which they defined as a Gleason score of at least 4+3=7 on subsequent radical prostatectomy specimens.[7] Kam et al also demonstrated that an abnormal (PIRADS 3+) lesion on mpMRI of the prostate had a 91% sensitivity in the detection of significant prostate cancer, again on prostatectomy specimens.[8] It is worth noting that 9% of men in that study with a significant prostate cancer had a normal mpMRI.[8]

It is also possible to target prostate biopsies based on MRI findings when high-risk lesions have been identified. Donato et al demonstrated that MRI targeted biopsy cores, using a cut off of PIRADS 4, detected clinically significant prostate cancers in 12.7% more men than systematic (non-targeted) cores.[9] The same study showed that there was a cost-saving associated with the use of mpMRI in a triage pathway for patients referred with suspected prostate cancer.[9] Similarly, the PROMIS trial showed that 27% of men referred to a prostate cancer triage service with suspected prostate cancer could avoid a biopsy if MRI was used.[3]

Multiparametric magnetic resonance imaging (mpMRI) of the prostate now plays a vital role in both the diagnosis and active surveillance of prostate cancer. Its use in reporting has been enhanced by the introduction of and improvements made to the prostate imaging- reporting and data system (PI-RADS).[10] UK data shows that there has been a significant increase in the use of MRI before biopsy in suspected prostate cancer between 2016 and 2018.[11] In the Australian setting; rebates for mpMRI of the prostate were added to the Medicare Benefit Schedule (MBS) in July 2018 (see table 1 for full details). They are available to patients once per 12 month period when ordered by relevant specialists (urologists, radiation oncologists and medical oncologists) for particular indications. These include the diagnosis of prostate cancer in particular population groups when prostate malignancy is suspected based on either biochemical (PSA) or physical (DRE) findings. A separate rebate is available for the use of mpMRI of the prostate for active surveillance of men with biopsy confirmed prostate cancer.

Table 1: Criteria for MBS rebates for mpMRI of the prostate[12]

Diagnostic criteria: **For MBS items 63541 and 63542 (NK) the patient must be suspected of having prostate cancer based on:**
a) A digital rectal examination (DRE) which is suspicious for prostate cancer; or a) In a person aged less than 70 years, at least two prostate specific antigen (PSA) tests performed within an interval of 1- 3 months are greater than 3.0 ng/ml, and the free/total PSA ratio is less than 25% or the repeat PSA exceeds 5.5 ng/ml; or a) In a person aged less than 70 years, whose risk of developing prostate cancer based on family history is at least double the average risk , at least two PSA tests performed within an interval of 1- 3 months are greater than 2.0 ng/ml, and the free/total PSA ratio is less than 25%; or a) In a person aged 70 years or older, at least two PSA tests performed within an interval of 1- 3 months are greater than 5.5ng/ml and the free/total PSA ratio is less than 25%. Note: Relevant family history is a first degree relative with prostate cancer or suspected of carrying a BRCA 1, BRCA 2 mutation.
Active surveillance criteria: **For MBS items 63543 and 63544 (NK) the below clinical criteria must be met:**
a) The patient is under active surveillance following a confirmed diagnosis of prostate cancer by biopsy histopathology; and a) the patient is not planning or undergoing treatment for prostate cancer.

METHODS

All mpMRI scans of the prostate performed between July 1 2017 and June 30 2019 at one public teaching hospital (University Hospital Geelong) were included. They were performed at Barwon Medical Imaging and reported using the PI-RADS classification.[10] Included scans were identified through a database search for MRI of the prostate based on the date ranges. All indications were included. Only completed scans were analysed and data was extracted from the referral requests and imaging reports by 2 authors.

RESULTS

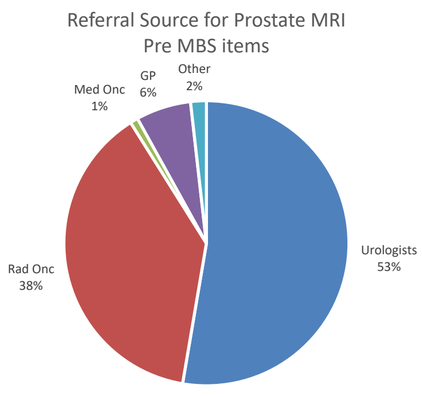
112 scans were performed in the 12-month period leading up to introduction of the MBS items. This increased to 135 scans following their introduction. The number of referrals by general practitioners decreased from 7 (6.25%) to just 2 (1.48%) over the study period. There was an increase in the number of diagnostic scans performed, from 33 of 112 referrals (29.5%) prior to July 2018 to 77 of 135 referrals (57%) post.

Table 2: Characteristics of mpMRI prostate scans pre and post MBS item introduction

Characteristic:	Pre MBS item introduction	Post MBS item introduction
n=	112	135
Mean age (range)	66.9 (18-83)	66.0 (45-84)
Mean prostate volume cc	53.8	56.3
Mean number of PIRADS 3+ lesions	1.3	1.5
Mean PIRADS value	4.1	3.8

Table 3: Referral source for mpMRI of the prostate pre and post MBS item introduction

Referral specialty	Pre MBS item introduction	Post MBS item introduction
Urologist	59	101
Radiation Oncologist	43	32
Medical Oncologist	1	0
General Practitioner	7	2
Other	2	0
Total	112	135



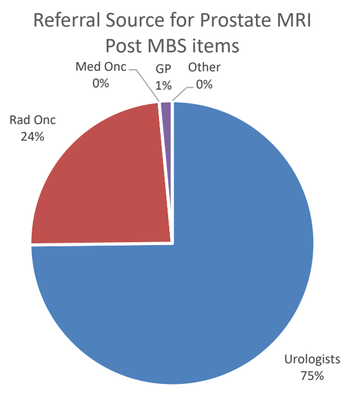
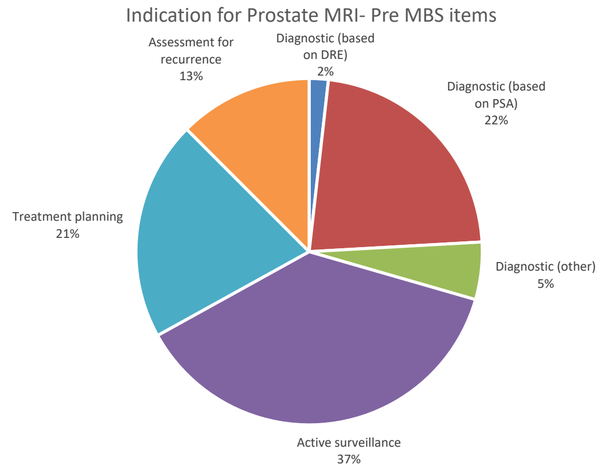
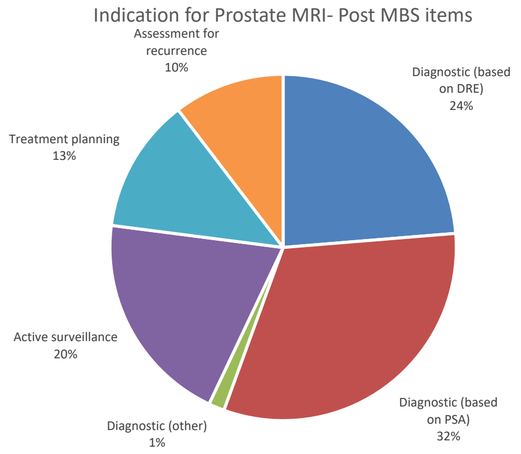


Table 4: Indication for mpMRI of the prostate

Indication	Pre MBS item introduction	Post MBS item introduction
Diagnostic (based on DRE)	2	32
Diagnostic (based on PSA)	25	43
Diagnostic (other)	6	2
Active surveillance	42	27
Treatment planning	23	17
Assessment for recurrence	14	14
Total	112	135





CONCLUSIONS

This study demonstrated that MBS rebates for mpMRI of the prostate are being successfully utilised in this region of Victoria. There was an increase in the total number of referrals in the 12 month period following their introduction. There was also a change in the source of referrals, with an increase in the proportion of scans ordered by the specialists listed in the MBS item requirements. There has been a shift towards more frequent use of mpMRI in the work-up and diagnosis of prostate cancer.

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