key points

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The prostate specific antigen (PSA) test clearly provides the opportunity for clinically relevant prostate cancer to be detected at a stage when treatment options are greater and outcomes may be improved. However, in some patients the PSA test may lead to investigations which can identify clinically insignificant cancers which would not have become evident in a man's lifetime. In addition, a raised PSA may often indicate benign prostatic enlargement, and this may provide an opportunity for treatment of this condition before complications develop.

There are two promising urinary RNA biomarkers, prostate cancer antigen 3 (PCA3) and fusion gene TMPRSS2:ERG, both of which aim to distinguish between men with low-risk (indolent) and those with aggressive (clinically significant) cancers.

False-negative rates with standard TRUS-guided biopsy can be as high as 45%. Up to half of men who are initially diagnosed with low-risk disease are under-staged and actually have a higher burden of high-risk disease. However, the utilisation of multiparametric MRI (mp-MRI) before prostate biopsy has the potential to improve the accuracy of the diagnosis and staging of prostate cancer.

NICE guidelines currently recommend that men whose biopsies are negative on TRUS 10 to 12 cores biopsy should be further evaluated with mp-MRI. If the man is negative on mp-MRI, then another biopsy should not be recommended unless there are other significant risk factors.

Evidence suggests that any benefit to a man from undergoing radical treatment for prostate cancer is likely to be maximal for those whose comorbidities and age suggest a life expectancy of more than ten years. Men with advanced prostate cancers are less likely to benefit from radical treatment alone.

The lack of sensitivity and specificity that characterises PSA testing in the initial diagnosis of prostate cancer largely disappears after treatment of localised prostate cancer, especially after surgery. Three monthly PSA measurement is usually recommended for the first year after primary treatment. Subsequently less frequent testing is required. A PSA rise after primary treatment usually indicates biochemical recurrence and often the need for further therapy.