

# Navigating NICE NG12 and PCRMP guidelines on PSA testing

## Why we've produced this guidance

An update to NICE NG12 guidelines in 2021 created confusion about the thresholds for referring men who undergo Prostate Specific Antigen (PSA) testing in primary care. PSA thresholds for referral differ depending on whether a man reports lower urinary tract symptoms (LUTS) (symptomatic referral), or not (asymptomatic referral). Geographical variations in the application of age-specific PSA thresholds have the potential to create inequalities in PSA testing and subsequent referral for suspected prostate cancer diagnostics, particularly for older men<sup>i</sup>.

## Who is this guide for?

It's for primary care health professionals who undertake PSA testing in symptomatic men (where there is a suspicion of prostate cancer) and asymptomatic men at risk of prostate cancer, who request a PSA test and have been counseled on the benefits and the harms of the PSA test.

## Key guidance referred to in this document

Suspected cancer: recognition and referral NICE guideline (NG12)<sup>ii</sup> – for men presenting with symptoms that could be caused by prostate cancer. Prostate Cancer Risk Management Programme (PCRMP) (currently under review)<sup>iii</sup> – in the absence of a national screening programme, PCRMP helps GPs give clear and balanced information to asymptomatic men who ask about PSA testing. The PSA test is available free to any well man aged 50 and over who requests it.

## Prostate health tests in primary care

Digital rectal exam (DRE) and/or the PSA blood test are standard tests carried out in combination or independently. In both cases the GP should consider a patient's history including – comorbidities, ethnicity, and family history.

## Men considered to be at higher risk of developing prostate cancer

- Men aged 50 or older – risk increases with age.
- Black men have a 1 in 4 chance of developing prostate cancer in their lifetime compared to the general population who have a 1 in 8 chance.
- Men with a family history (father or brother with prostate cancer) are two and a half times more likely to develop prostate cancer.

Prostate Cancer UK's PSA consensus<sup>iv</sup> recommends that asymptomatic men who have a higher than average risk of prostate cancer (black men and men with a family history) should be able to have a PSA test from the age of 45. Higher risk men who are tested between the ages of 45-49 should be referred to a specialist for more tests if their PSA level is higher than 2.5ng/ml.

## Symptoms

PCRMP recommends GPs should follow NICE NG12 guidelines when managing men who have symptoms that suggest prostate disease. NICE guidelines include a range of symptoms which could trigger further investigation for suspected prostate cancer (Table A). PCRMP acknowledges that early prostate cancer does not usually cause symptoms. Men seeking advice about LUTS can sometimes lead to investigations which diagnose a coincidental prostate cancer. The absence of voiding symptoms in men with a PSA concentration of  $\geq 3.0$ ng/mL is an independent risk factor for prostate cancer<sup>v</sup>. This illustrates that prostate cancer is a condition where the presence of symptoms makes a diagnosis less likely.

**Table A**

NICE Clinical Knowledge Summaries (CKS) include the following symptoms	NICE NG12 - 1.6 Urological cancers (Prostate cancer) include the following symptoms
<ul style="list-style-type: none"> <li>• Lower back or bone pain</li> <li>• Lethargy</li> <li>• Erectile dysfunction</li> <li>• Visible haematuria</li> <li>• Anorexia/weight loss</li> <li>• Lower urinary tract symptoms (LUTS), such as nocturia, frequency, urgency, hesitancy, retention, terminal dribbling, and/or overactive bladder*</li> <li>• Lower back pain, bone pain, weight loss (possible symptoms of advanced prostate cancer).</li> </ul>	<ul style="list-style-type: none"> <li>• any lower urinary tract symptoms, such as nocturia, urinary frequency, hesitancy, urgency or retention <b>or</b></li> <li>• erectile dysfunction <b>or</b></li> <li>• visible haematuria.</li> </ul>

\*These symptoms are common in older men and early prostate cancer will not usually produce these symptoms. However, locally advanced prostate cancer may cause obstructive LUTS.

**When to refer**

It should be noted that NICE NG12 allows for DRE and PSA thresholds to act as independent indicators for referral. If a prostate feels abnormal on DRE (i.e. may contain malignancies), but the PSA is below the threshold for referral, GPs should still refer men for suspected prostate cancer. Similarly, if the prostate feels normal on DRE, but the PSA is raised, then a GP should refer men for suspected prostate cancer. However, a normal DRE on its own should not be relied upon to exclude prostate cancer, as most tumours are not palpable, therefore DRE and PSA should be used in combination. Table B shows the different thresholds for DRE and PSA for symptomatic men versus asymptomatic men.

**Table B**

	DRE	PSA	Other factors	
Symptomatic men	Refer people using a suspected cancer pathway referral (for an appointment within 2 weeks) for prostate cancer if their prostate feels malignant on digital rectal examination (DRE).	<b>Age (years)</b>	<b>Prostate-specific antigen threshold (micrograms/litre)</b>	Taking into account a man’s preferences and any comorbidities when making a decision to refer.
		Below 40	Use clinical judgement	
		40 to 49	More than 2.5	
		50 to 59	More than 3.5	
		60 to 69	More than 4.5	
		70 to 79	More than 6.5	
		Above 79	Use clinical judgement	
Asymptomatic men	DRE should be used in combination with PSA testing. Cross-references NICE NG12. Men should be referred (for an appointment within 2 weeks) for suspected prostate cancer if their prostate feels malignant on DRE.	If the PSA is over 3.0ng/ml, the GP is advised to refer.	Further diagnostic evaluation should consider the man’s history of comorbidities, <b>ethnicity, family history</b> and abnormal DRE findings prior to biopsy.	

## Impact

Scenarios exist that could prevent some men from being referred for further investigation for suspected prostate cancer, in cases where men report LUTS. See Table C for example:

**Table C**

	NICE NG12	PCRMP
<b>Patient aged 63, reports they get up in the night more frequently for a wee than they used to, 1-2 times per night, DRE is normal, PSA 4.2ng/ml</b>	<b>'Do not refer'</b>	<b>'Refer to specialist'</b>
<p>If the GP considers the described LUTS to be a possible symptom (in a normally asymptomatic disease), this will shift the case toward the NICE NG12 protocol, and the man would not be referred for further investigation for suspected prostate cancer, having not met the NICE age-specific PSA threshold.</p> <p>In this scenario, DRE becomes an important assessment to differentiate between symptoms caused by an abnormal prostate and symptoms that are not caused by an abnormal prostate. However, as highlighted in a recent study, it is important that DRE and PSA are carried out in combination in primary care to support triaging of men to MRI first and negating the need for a repeat DRE in secondary care<sup>vi</sup>.</p>		

### Case study

Imperial Prostate and RM Partners reviewed their RAPIDOnline data to understand the impact of NICE NG12 age-specific PSA thresholds on their historic case load. They found that of 4,084 cases referred, 1,155 (28%) of cases (majority referred on PSA alone) would not have been referred based on NICE NG12 guideline. Of the group not referred, 379/1,155 (33%) would have avoided a biopsy; 30/1,155 (2.6%) insignificant prostate cancer diagnoses would have been avoided; but 188/1,155 (16%) significant cancers (any ISUP  $\geq$ GG2) would have been missed overall and there was a greater impact on older age groups, >60 years.

### Conclusion

NICE NG12 highlights that referral for suspected prostate cancer based on age-specific PSA thresholds is already recommended, therefore practice should not change. In the updated NG12 guideline, NICE have now published the age-specific PSA thresholds, which has the potential to cause confusion where men are approaching their GP for a PSA test under the asymptomatic route of the PCRMP. Real world data analysis shows the potential impact on the diagnosis of clinically significant prostate cancer overall, with men aged >60 experiencing the greatest impact. We recommend primary care work closely with their Urological Cancer teams and Urological / Prostate Cancer Clinical Lead to agree local protocols that ensure asymptomatic men who are PSA tested are triaged and referred according to PCRMP guidelines and not NICE NG12.

## References

<sup>i</sup> Light A, Burns-Cox N, Maccormick A, John J, McGrath J, Gnanapragasam VJ. The diagnostic impact of UK regional variations in age-specific prostate-specific antigen guidelines. *BJU Int.* 2021 Sep;128(3):298-300. <https://doi.org/10.1111/bju.15484>. Epub 2021 Jun 13. PMID: 34014596.

<sup>ii</sup> Suspected cancer: recognition and referral (NICE Guideline NG12) <https://www.nice.org.uk/guidance/ng12/chapter/Recommendations-organised-by-site-of-cancer#urological-cancers>

<sup>iii</sup> Prostate cancer risk management programme: overview <https://www.gov.uk/guidance/prostate-cancer-risk-management-programme-overview>

<sup>iv</sup> <https://prostatecanceruk.org/about-us/projects-and-policies/consensus-on-psa-testing>

<sup>v</sup> Frånlund M, Carlsson S, Stranne J, Aus G, Hugosson J. The absence of voiding symptoms in men with a prostate-specific antigen (PSA) concentration of  $\geq 3.0$  ng/mL is an independent risk factor for prostate cancer: results from the Gothenburg Randomized Screening Trial. *BJU Int.* 2012 Sep;110(5):638-43. doi: [10.1111/j.1464-410X.2012.10962.x](https://doi.org/10.1111/j.1464-410X.2012.10962.x). Epub 2012 Apr 30. PMID: 22540895; PMCID: PMC5629001.

<sup>vi</sup> Sajjad W, Thankappannair V, Shah S, et al. Diagnostic value of the abnormal digital rectal examination in the modern MRI-based prostate cancer diagnostic pathway. *Journal of Clinical Urology.* April 2022. doi: [10.1177/20514158221091402](https://doi.org/10.1177/20514158221091402).

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## PROFESSIONAL SUPPORT

### Additional Support Services

If you would like further support about any of the content in this document and/or support navigating NICE NG12 and PCRMP guidelines on PSA testing, visit:

[prostatecanceruk.org](https://prostatecanceruk.org)

Or contact Prostate Cancer UK  
[info@prostatecanceruk.org](mailto:info@prostatecanceruk.org)

Prostate Cancer Helpline:  
**020 3310 7000**