

The South African Prostate Cancer Screening Guidelines

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Prostate cancer (PCa) is the most widespread solid organ malignancy in males and ranks as the fifth leading cause of death globally. Identifying and treating men with clinically significant disease while avoiding the over-diagnosis and over-treatment of indolent disease remains a significant challenge. Several professional associations have developed guidelines on screening and early diagnosis of asymptomatic men with prostate-specific antigen testing. With recent updates from several large randomised prospective trials, the South African Urological Association and the Prostate Cancer Foundation of South Africa have developed these evidence-based recommendations to guide clinicians on PCa screening and early diagnosis for South African men.

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Prostate cancer (PCa) is the most widespread non-cutaneous cancer found in males and ranks as the fifth leading cause of death globally.^[1] In South Africa (SA), PCa is the predominant solid organ cancer detected, regardless of ethnic background,^[1] and its prevalence in southern Africa has increased by ~60% during the past 15 years.^[2] Black SA men typically receive a diagnosis at a more advanced stage and exhibit a higher histological grade compared with SA men of other ethnic backgrounds.^[3,4]

Organised screening of asymptomatic men uses prostate-specific antigen (PSA) testing to detect cancer in its early stages and reduce PCa-related morbidity and mortality. However, there is evidence indicating that a significant number of men undergo PSA testing without being adequately informed about the potential hazards and benefits associated with testing. Additionally, numerous men undergo PSA testing in a manner that deviates from the criteria outlined in guidelines. These deviations include testing too frequently, at a young age, at an advanced age, or when short life expectancy precludes any survival benefits from screening.

Identifying and treating men with clinically significant PCa while avoiding overdiagnosis and overtreatment of indolent disease remains a significant challenge. It is therefore necessary to establish evidence-based guidelines and recommendations for screening for PCa for SA. These guidelines will help ensure that PSA testing is used appropriately, thereby allowing men and their doctors to have open discussions regarding screening, and enable clinicians and their patients to make informed decisions based on the latest available evidence. Men who choose to undergo screening should be provided with information regarding the appropriate age to begin testing, the recommended frequency of screening, the appropriate time to discontinue testing, and the threshold PSA level that should trigger further examination.

It is important to make the distinction between screening and diagnostic testing. Screening refers to testing an asymptomatic patient with an increased risk of developing PCa. Symptomatic patients need further diagnostic work-up, which is beyond the scope of these

guidelines. The recommendations below therefore apply specifically to asymptomatic patients who are considered for PCa screening.

Recommendations

1. Only offer PCa screening to informed, asymptomatic men, in line with their personal values and preferences, who have a life expectancy of >10 years.

In medicine, multiple options are available for testing or treatment for certain conditions. This choice may be easy if one test or course of therapy is supported by scientific evidence. In other situations, selecting the optimal option can be challenging if there is no correct answer. The decision in these cases is referred to as 'preference sensitive', since the informed patient's choice, that is in line with their personal values and preferences, is the 'best' option. PCa screening is one such situation. Shared decision-making is considered state of the art in patient counselling for preference-sensitive decisions.^[5] PCa screening should only be offered after a detailed, comprehensive explanation of its risks and benefits. The possible benefit of reducing rates of PCa-specific mortality and metastases needs to be weighed against the side-effects of screening and increased diagnosis, which lead to over-treatment of mainly clinically insignificant, harmless PCa, and subsequent treatment-related effects.^[6] PCa screening should not be offered to an uninformed patient.

2. Do not offer PCa screening to men who are unlikely to accept therapy even if a significant treatable cancer is subsequently found.

3. Do not offer PCa screening to men aged >70 years or with a life expectancy of <10 years based on age or comorbidities, because the potential survival benefits from treatment are statistically minimal, and they do not outweigh the significant adverse effects that the patient may experience due to treatment.

Men aged >70 years have been reported to have the highest incidence of PCa overdiagnosis, with several studies suggesting that screening

in this age group is likely not to be beneficial. Data from the European Randomised Study of Screening for Prostate Cancer trial showed that starting screening at age >70 did not result in a reduction in PCa mortality.^[7] Similarly, in patients with a <10-year estimated life expectancy, screening is not likely to provide a benefit in terms of disease-specific or overall mortality.^[5] Moreover, the evidence obtained from randomised trials that compared surgery, radiation and monitoring has demonstrated that curative treatment becomes less beneficial and more hazardous as age increases.^[8-10] While we note the challenges in estimating life expectancy, we recommend against offering PCa screening in asymptomatic men aged >70 years or with a life expectancy <10 years, where their competing risks of mortality are likely to compromise any benefit from PCa screening. For men who are interested, and in excellent health at age 70, PSA testing can be considered, provided the patient is informed about the risks and benefits.

4. Use the PSA blood test as the first screening test.

Although it lacks specificity, PSA is still the recommended screening test for early diagnosis of PCa.^[5] PSA levels tend to escalate as individuals grow older, and the rate of increase is more rapid in elderly men. The accepted threshold for PSA level is typically ≤4 ng/mL. Age-specific ranges have been established to decrease the identification of less-developed cancers in older men and enhance the identification of large yet potentially treatable tumours in the younger age category. The age-specific normal ranges for PSA levels are set out in Table 1.

The role of digital rectal examination (DRE) as part of the initial PCa screening evaluation in asymptomatic patients has recently been reviewed. A comprehensive meta-analysis and systemic review that evaluated eight studies, involving 85 738 participants, found that there was no benefit in terms of the cancer detection rate or the positive predictive value of combined DRE and PSA testing over PSA testing alone.^[11,12] Another meta-analysis specifically evaluating the diagnostic accuracy of DRE in the primary healthcare setting came to a similar conclusion, and recommended that routine DRE screening for PCa in the primary care setting could be omitted.^[13] It must be stressed that DRE in primary care still plays a statistically significant role in evaluating and diagnosing symptomatic patients.^[14]

5. Offer early PSA testing to asymptomatic, well-informed men with a life expectancy of >10 years who are at high risk of CaP.

Initiate PSA screening in the following patients who are at high risk for CaP:

- From the age of 50 years in all men
- From the age of 45 years in black African men, and in men with a positive family history of prostate and/or breast cancer in a first-degree relative
- In men who have undergone genetic testing and who are carriers of the *BRCA2*, *BRCA1*, *HOXB13*, *ATM* or *CHEK2* genes, screening should be performed at 40 years of age or at 10 years younger than the age of onset of the youngest affected family member if this was before 40 years of age.

Table 1. Age-specific normal ranges for prostate-specific antigen levels

Age group (years)	Reference range (ng/mL)
40 - 49	0 - 2.5
50 - 59	0 - 3.5
60 - 70	0 - 4.5

6. Individualise screening intervals for PSA testing in men who had a normal initial PSA test.

The optimal intervals for PSA testing are unknown, and it is therefore recommended to determine further PSA testing on an individual basis based on the initial PSA level. International guidelines suggest that that interval may be extended up to 8 years between tests.^[15] However, considering that black African men have historically been under-represented in trials^[16] and that they have a higher incidence of and mortality from PCa compared with men of other races,^[17] more frequent PSA testing is recommended (Fig. 1).

7. Discontinue PSA screening in men aged >70 years or with a life expectancy of <10 years, based on age or comorbidities, because the potential survival benefits from treatment are statistically minimal, and they do not outweigh the significant adverse effects that the patient may experience due to treatment.

8. Defer PSA screening when factors are present that may transiently elevate PSA enough to affect its performance as a screening test.

Apart from age, PCa and benign prostatic hyperplasia, other factors may transiently falsely elevate PSA. It is recommended that screening be deferred in the following situations, for long enough for the PSA elevation to resolve:^[18,19]

- Bacterial prostatitis – defer PSA testing for 6 - 8 weeks after resolution of symptoms
- Acute urinary retention – defer PSA testing for 6 weeks
- Urethral instrumentation – defer PSA testing for 6 weeks
- Recent transurethral resection of the prostate – defer PSA testing for 6 weeks.

9. Repeat the PSA test in asymptomatic men in whom the initial PSA level is raised but <10 ng/mL (i.e. the ‘grey zone’) and who have normal findings on DRE.

Of individuals who have recently had an increase in their PSA levels, 25 - 40% may expect a return to normal levels upon undergoing a subsequent test.^[20] Of the 1 686 patients who underwent a biopsy in the Stockholm 3 study and had a PSA level between 3 and 10 ng/mL, and had two PSA tests taken 8 weeks apart, 283 (16.8%) had a subsequent PSA level <3 ng/mL.^[21] Sexual activity can minimally elevate the PSA level (usually in the 0.4 - 0.5 ng/mL range) for ~48 - 72 hours after ejaculation.^[22] Vigorous bicycle riding has also been reported to cause significant elevations in PSA, although studies contradict this. It is therefore recommended to verify the elevated PSA measurement after abstaining from ejaculation or cycling for at least 48 hours before continuing with additional assessment. It is worth noting that a DRE may cause minor transient elevations that are clinically insignificant.^[23,24]

10. Improve the specificity of cancer detection when total PSA is in the ‘grey zone’ by determining the free/total PSA ratio.

We recommend using the free/total PSA ratio to improve the sensitivity of cancer detection when the initial total PSA level is elevated, but still <10 ng/mL in the presence of a normal DRE.^[25] A free/total PSA ratio ≤0.10 (10%) carries a cancer probability of >80%, and a ratio ≥0.25 (25%) carries a cancer probability of <10%. Free/total PSA is of no clinical use if the total serum PSA is >10 ng/mL or during follow-up of known PCa.^[26]

11. Apply a correction factor to obtain a more accurate PSA level in men on 5-alpha-reductase inhibitors (5ARIs): finasteride or dutasteride.

Finasteride and dutasteride are 5ARIs that are used either as monotherapy or, more commonly, as combination therapy in the

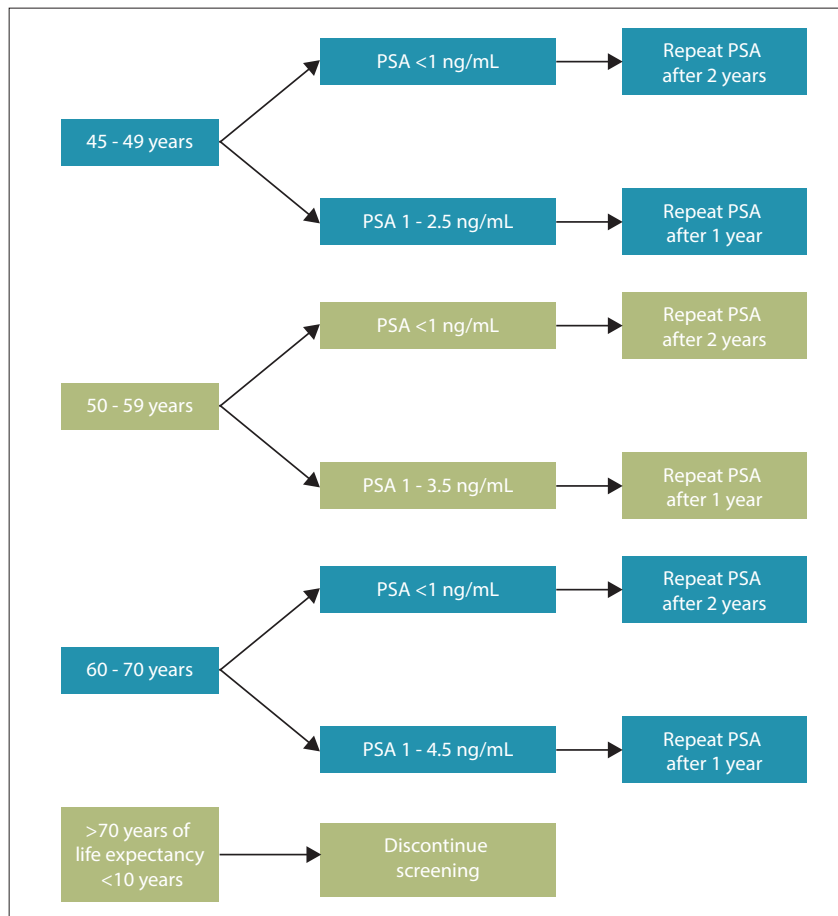


Fig. 1. Recommended age-related screening intervals for prostate-specific antigen screening.

medical management of benign prostatic enlargement.^[27] They act by chemically blocking dihydrotestosterone production and shrinking the prostate volume by inducing apoptosis of prostate epithelial cells.^[28] Over a period of 6 - 12 months, treatment with 5ARIs reduces the prostate size by ~20%, with a 50% decrease in PSA.^[29,30] It is recommended that in men who are using either of these drugs, the PSA level should be multiplied by 2.

12. Do not use antibiotics for asymptomatic men with no clinical features of bacterial infection to reduce the PSA.

In the past, it was routine practice to treat asymptomatic men with an elevated PSA with antibiotics to see if a possible infection may be responsible for the PSA increase. This practice may be detrimental and predispose the patient to increased risk of infection after prostate biopsy at a later stage, *Clostridium difficile* infection and antibiotic resistance, and is therefore not recommended.^[5,31,32]

13. Do not use alpha-blockers (tamsulosin/doxazosin/alfuzosin) for asymptomatic men to reduce the PSA.

14. Refer men with a persistently elevated age-adjusted PSA level or abnormal DRE to the urologist for further work-up.

The foundation of a definitive PCa diagnosis is histopathological confirmation through transperineal or transrectal prostate biopsy. However, considering that the likelihood of high-grade PCa has been estimated to be as high as 98.5%^[33] in men with a PSA level >50 ng/mL, in the absence of another cause for increased PSA, biopsy can be delayed or omitted in situations where biopsy is risky (patients on anticoagulation or frail patients with significant comorbidities) or will delay treatment (spinal cord compromise from metastases).^[34] This recommendation is based on the condition that the urologist communicates the risk of PCa and the patient is involved in the decision-making process.

In the same light, authors have reported a positive predictive value for detecting PCa with needle biopsy of 100% in patients with PSA levels ≥ 100 ng/mL. Of the patients with a PSA level ≥ 100 ng/mL, all (100%) had extraprostatic disease, 7% had locally advanced disease, and 93% had metastatic disease.^[35] Similarly, an SA study also showed that a clinical diagnosis

of advanced PCa can be made based on the basis of serum PSA, DRE findings and supportive clinical features.^[36] We therefore recommend, in select patients (elderly with multiple comorbidities), especially in resource-limited settings, that a clinical diagnosis (without needle biopsy) of advanced PCa can be made in order to start androgen deprivation therapy without delay and avoid the associated costs and complications of a prostate biopsy. This recommendation is based on the condition that the urologist informs the patient of the likelihood of metastatic disease and the consequences of delaying treatment, and that the patient is involved in the decision-making process.

All other patients should be risk-stratified, staged and managed according to the local treatment guidelines.

Conclusion

The development of guidelines and recommendations for PSA screening has been challenging. The authors have had to strike a balance and make recommendations applicable to both a well-resourced private sector and an under-resourced public sector. Epidemiological data showing the burden of disease, especially the rates of advanced disease in the coloured and black SA populations,^[3,4,37-40] suggest that a national PCa screening programme will be worthwhile; however, multiple factors make the roll-out of such a campaign particularly complex. Various studies have reported on the barriers to PCa screening in Africa, which include lack of patient education, poor uptake in low socioeconomic communities, and lack of resources to implement screening as well as treatment.^[2,41] The logistical and resource-related challenges to roll out an effective screening programme would be immense but not insurmountable. Achieving good uptake and participation in such a programme, especially in the black South African male population, will require an in-depth understanding of cultural and gender-specific beliefs within the different communities, especially in rural areas, where these ideas are even more entrenched.^[2,39] The dearth of urological services to treat increased numbers of PCa patients, especially in the public sector,^[42,43] leaves us with ethical questions regarding the initiation of a more robust screening programme. The inevitable increased burden of disease may, on the other hand, place greater focus on the severely under-resourced men's health sector in our country. Although implementing a national screening programme is not yet a reality, these guidelines aim to encourage general

practitioners and primary care physicians to implement screening for the correct patients in the correct way, within the resources available.

- Sung H, Ferlay J, Siegel RL, et al. Global cancer statistics 2020: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. *CA Cancer J Clin* 2021;71(3):209-249. <https://doi.org/10.3322/caac.21660>
- Marima R, Mbeje M, Hull R, Demetriou D, Mtshali N, Dlamini Z. Prostate cancer disparities and management in southern Africa: Insights into practices, norms and values. *Cancer Manag Res* 2022;14:3567-3579. <https://doi.org/10.2147/CMAR.S382903>
- Dewar M, Kaestner L, Zikhali Q, Jehle K, Sinha S, Lazarus J. Investigating racial differences in clinical and pathological features of prostate cancer in South African men. *S Afr J Surg* 2018;56(2):54-58.
- Heyns CF, Fisher M, Lecuona A, van der Merwe A. Prostate cancer among different racial groups in the Western Cape: Presenting features and management. *S Afr Med J* 2011;101(4):267-270. <https://doi.org/10.7196/SAMJ.4420>
- Wei JT, Barocas D, Carlsson S, et al. Early detection of prostate cancer: AUA/SUO guideline part I: Prostate cancer screening. *J Urol* 2023;210(1):46-53. <https://doi.org/10.1097/JU.0000000000003491>
- Van Poppel H, Hogenhout R, Albers P, van den Bergh RCN, Barentz JO, Roobol MJ. A European model for an organised risk-stratified early detection programme for prostate cancer. *Eur Urol Oncol* 2021;4(5):731-739. <https://doi.org/10.1016/j.euro.2021.06.006>
- Hugosson J, Roobol MJ, Månsson M, et al. A 16-yr follow-up of the European Randomised Study of Screening for Prostate Cancer. *Eur Urol* 2019;76(1):43-51. <https://doi.org/10.1016/j.euro.2019.02.009>
- Hamdy FC, Donovan JL, Lane JA, et al. 10-year outcomes after monitoring, surgery, or radiotherapy for localised prostate cancer. *N Engl J Med* 2016;375(15):1415-1424. <https://doi.org/10.1056/NEJMoa1606220>
- Wilt TJ, Vo TN, Langsetmo L, et al. Radical prostatectomy or observation for clinically localised prostate cancer: Extended follow-up of the Prostate Cancer Intervention Versus Observation Trial (PIVOT). *Eur Urol* 2020;77(6):713-724. <https://doi.org/10.1016/j.euro.2020.02.009>
- Bill-Axelsson A, Holmberg L, Garmo H, et al. Radical prostatectomy or watchful waiting in early prostate cancer. *N Engl J Med* 2014;370(10):932-942. <https://doi.org/10.1056/NEJMoa1311593>
- Matsukawa A, Yanagisawa T, Bekku K, et al. Comparing the performance of digital rectal examination and prostate-specific antigen as a screening test for prostate cancer: A systematic review and meta-analysis. *Eur Urol Oncol* 2024;S2588-9311(23)00292-4. <https://doi.org/10.1016/j.euro.2023.12.005>
- Krivilaviciute A, Becker N, Lakes J, et al. Digital rectal examination is not a useful screening test for prostate cancer. *Eur Urol Oncol* 2023;6(6):566-573. <https://doi.org/10.1016/j.euro.2023.09.008>
- Naji L, Randhawa H, Sohani Z, et al. Digital rectal examination for prostate cancer screening in primary care: A systematic review and meta-analysis. *Ann Fam Med* 2018;16(2):149-154. <https://doi.org/10.1370/afm.2205>
- Jones D, Friend C, Dreher A, Allgar V, Macleod U. The diagnostic test accuracy of rectal examination for prostate cancer diagnosis in symptomatic patients: A systematic review. *BMC Fam Pract* 2018;19(1):79. <https://doi.org/10.1186/s12875-018-0765-y>
- Mottet N, van den Bergh RCN, Briers E, et al. EAU-EANM-ESTRO-ESUR-SIOG guidelines on prostate cancer – 2020 update. Part I: Screening, diagnosis, and local treatment with curative intent. *Eur Urol* 2021;79(2):243-262. <https://doi.org/10.1016/j.euro.2020.09.042>
- Sayegh N, Swami U, Jo Y, et al. Race and treatment outcomes in patients with metastatic castration-sensitive prostate cancer. *JAMA Netw Open* 2023;6(8):e2326546. <https://doi.org/10.1001/jamanetworkopen.2023.26546>
- DeSantis CE, Miller KD, Goding Sauer A, Jemal A, Siegel RL. Cancer statistics for African Americans, 2019. *CA Cancer J Clin* 2019;69(3):211-233. <https://doi.org/10.3322/caac.21555>
- Polascik T, Oesterling JE, Partin A. Prostate specific antigen: A decade of discovery – what we have learned and where we are going. *J Urology* 1999;162(2):293-306. [https://doi.org/10.1016/S0022-5347\(05\)68543-6](https://doi.org/10.1016/S0022-5347(05)68543-6)
- Oesterling JE, Rice DC, Glenski WJ, et al. Effect of cystoscopy, prostate biopsy, and transurethral resection of prostate on serum prostate-specific antigen concentration. *Urology* 1993;42(3):276-282. [https://doi.org/10.1016/0090-4295\(93\)90616-i](https://doi.org/10.1016/0090-4295(93)90616-i)
- Eastham JA, Riedel E, Scardino PT, et al. Variation of serum prostate-specific antigen levels. *JAMA* 2003;289(20):2695-2700. <https://doi.org/10.1001/jama.289.20.2695>
- Nordström T, Adolffsson J, Grönberg H, et al. Repeat prostate-specific antigen tests before prostate biopsy decisions. *J Natl Cancer Inst* 2016;108(12):djw165. <https://doi.org/10.1093/jnci/djw165>
- Tchetgen M-B, Song JT, Strawderman M, Jacobsen SJ, Oesterling FE. Ejaculation increases the serum prostate-specific antigen concentration. *Urology* 1996;47(4):511-516. [https://doi.org/10.1016/S0090-4295\(99\)80486-5](https://doi.org/10.1016/S0090-4295(99)80486-5)
- Figueirêdo M de F, Lopes GT, Naidu TG. Digital rectal examination (DRE) does not influence total serum levels of prostate specific antigen (tPSA), in individuals without prostate pathology. *Int Braz J Urol* 2003;29(5):423-427. <https://doi.org/10.1590/S1677-55382003000500006>
- Crawford ED, Schutz MJ, Clejan S, et al. The effect of digital rectal examination on prostate-specific antigen levels. *JAMA* 1992;267(16):2227-2228.
- Lee R, Localio AR, Armstrong K, Malkowicz SB, Schwartz JS, Free PSA Study Group. A meta-analysis of the performance characteristics of the free prostate-specific antigen test. *Urology* 2006;67(4):762-768. <https://doi.org/10.1016/j.urology.2005.10.052>
- Mottet N, Cornford P, van den Bergh R, et al. EAU-EANM-ESTRO-ESUR-SIOG guidelines on prostate cancer – limited update March 2023. European Association of Urology, 2023. <https://uroweb.org/guideline/prostate-cancer/> (accessed 13 March 2024).
- Sandhu JS, Bixler BR, Dahm P, et al. Management of lower urinary tract symptoms attributed to benign prostatic hyperplasia (BPH): AUA Guideline amendment 2023. *J Urol* 2024;211(1):11-19. <https://doi.org/10.1097/JU.0000000000003698>
- Clark RV, Herrmann DJ, Cunningham GR, Wilson TH, Morrill BB, Hobbs S. Marked suppression of dihydrotestosterone in men with benign prostatic hyperplasia by dutasteride, a dual 5 α -reductase inhibitor. *J Clin Endocrinol Metab* 2004;89(5):2179-2184. <https://doi.org/10.1210/jc.2003-030330>
- Guess HA, Gormley GJ, Stoner E, Oesterling JE. The effect of finasteride on prostate specific antigen: Review of available data. *J Urol* 1996;155(1):3-9.
- Rittmaster RS, Norman RW, Thomas LN, Rowden G. Evidence for atrophy and apoptosis in the prostates of men given finasteride. *J Clin Endocrinol Metab* 1996;81(2):814-819. <https://doi.org/10.1210/jcem.81.2.8636309>
- Eggner SC, Large MC, Gerber GS, et al. Empiric antibiotics for an elevated prostate-specific antigen (PSA) level: a randomised, prospective, controlled multi-institutional trial. *Urol Oncol* 2013;112(4):925-929. <https://doi.org/10.1111/bju.12241>
- Government of British Columbia. Prostate Cancer Part 1: Diagnosis and Referral in Primary Care. <https://www2.gov.bc.ca/gov/content/health/practitioner-professional-resources/bc-guidelines/prostate-cancer-part-1> (accessed 2 May 2024).
- Gerstenbluth RE, Seffel AD, Hampel N, Oeferein MG, Resnick MI. The accuracy of the increased prostate specific antigen level (greater than or equal to 20 ng/mL) in predicting prostate cancer: Is biopsy always required? *J Urol* 2002;168(5):1990-1993. [https://doi.org/10.1016/S0022-5347\(05\)64279-6](https://doi.org/10.1016/S0022-5347(05)64279-6)
- Wei JT, Barocas D, Carlsson S, et al. Early detection of prostate cancer: AUA/SUO guideline part II: Considerations for a prostate biopsy. *J Urol* 2023;210(1):54-63. <https://doi.org/10.1097/JU.000000000000349233>
- Jang JY, Kim YS. Is prostate biopsy essential to diagnose prostate cancer in the older patient with extremely high prostate-specific antigen? *Korean J Urol* 2012;53(2):82-86. <https://doi.org/10.4111/kju.2012.53.2.82>
- Heyns CF, Basson J, van der Merwe A, Zarrabi AD. Clinical (non-histological) diagnosis of advanced prostate cancer: Evaluation of treatment outcome after androgen deprivation therapy. *S Afr J Surg* 2014;52(3):82-85.
- Benedict MOA, Steinberg WJ, Claassen FM, Mofolo N. The profile of black South African men diagnosed with prostate cancer in the Free State, South Africa. *S Afr Fam Pract* 2023;65(1):e1-e10. <https://doi.org/10.4102/safp.v65i1.5553>
- Heyns CF, Naudé AM, Visser AJ, et al. Early diagnosis of prostate cancer in the Western Cape. *S Afr Med J* 2001;91(8):679-684.
- Rebbeck TR, Devesa SS, Chang B-L, et al. Global patterns of prostate cancer incidence, aggressiveness, and mortality in men of African descent. *Prostate Cancer* 2013;2013:560857. <https://doi.org/10.1155/2013/560857>
- Marais article (May CME) – details to follow.
- Baratedi WM, Tshiamo WB, Mogobe KD, McFarland DM. Barriers to prostate cancer screening by men in sub-Saharan Africa: An integrated review. *J Nurs Scholarsh* 2020;52(1):85-94. <https://doi.org/10.1111/jnu.12529>
- John J, Adam A, Mutambirwa S. Urology care in South Africa: A call for collaboration. *S Afr Med J* 2024;114(4):e2107. <https://doi.org/10.7196/SAMJ.2024.v114i4.2107>
- John J. Urology pathways for the primary care physician. *S Afr Med J* 2024;114(4):e1670. <https://doi.org/10.7196/SAMJ.2024.v114i4.1670>

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