Costing the national clinical guidelines for prostate cancer control and management in South Africa: Public sector perspective

E Thsehla,[1,2] MPH, PhD; **M Khoza,**[3] MB BCh, MMed (Community Health); **M K Boachie,**[1] MPhil, PhD; **W Mdewa,**[1] BSc (Hons), MPH; **S Goldstein,**[1] MB BCh, MMed (Community Health); **H Somaroo,**[3] MB BCh, MMed (Community Health); **K J Hofman,**[1] MB BCh, FAAP

[1] *SAMRC/WITS Centre for Health Economics and Decision Science, Wits School of Public Health, Faculty of Health Sciences, University of the Witwatersrand, Johannesburg, South Africa*
[2] *School of Health Systems and Public Health, Faculty of Health Sciences, University of Pretoria, Pretoria, South Africa*
[3] *Wits School of Public Health, Faculty of Health Sciences, University of the Witwatersrand, Johannesburg, South Africa*

Corresponding author: *E Thsehla (thsehla.eve@gmail.com)*

Background. Prostate cancer (PCa) is the second most common cancer worldwide and the sixth leading cause of cancer deaths in men. In South Africa (SA), PCa accounts for ~13% of male deaths. The direct medical costs associated with PCa diagnosis and treatment according to the national clinical guidelines for prostate cancer control and management are not documented.
Objectives. To estimate the direct medical costs for localised PCa diagnosis and treatment according to the national clinical guidelines for prostate cancer control and management in SA.
Methods. The direct medical costs for diagnosis and treatment of prostate cancer were estimated from the payer's perspective using a micro-costing approach, with a time horizon of 12 months. Cost items were identified from the national PCa clinical guidelines and quantified according to the treatment options for low- (LRPCa), intermediate- (IRPCa) and high-risk (HRPCa) categories. Cost data were obtained from different government databases. The unit costs and PCa incidence data from 2022 were then used to estimate total costs for treating all new PCa cases. Total costs were calculated for each treatment method listed in the clinical guidelines according to PCa risk categories.
Results. The total cost for treating 10 944 new PCa cases in 2022 was estimated at ZAR2.1 billion. Per patient costs ranged from ZAR7 265 to ZAR143 156 for LRPCa, ZAR8 926 to ZAR144 817 for IRPCa and ZAR14 874 to ZAR151 872 for HRPCa. The total cost for managing all patients with LRPCa, IRPCa and HRPCa were estimated at ZAR401.3 million, ZAR371.1 million and ZAR1.4 billion, respectively.
Conclusion. This study estimated the cost for diagnosis and treatment of localised PCa according to national clinical guidelines for PCa control and management. The costs increased with each risk category of the cancer. The study highlights the need for policy-makers to increase early detection and management, to reduce the need for high-cost interventions.

Keywords: prostate cancer, cost of illness, clinical guidelines

S Afr Med J 2026;116(1):e2678. https://doi.org/10.7196/SAMJ.2026.v116i1.2678

Prostate cancer (PCa) is the second most common cancer worldwide and the sixth leading cause of cancer deaths in men.[1] In 2020, an estimated 1.4 million new cases and 375 000 deaths were reported globally.[2,3] In 2022, the age-standardised incidence rate ranged between 82.8 per 100 000 in Northern Europe and 6.4 per 100 000 in south central Asia.[4] In southern Africa, age-standardised incidence rates were estimated at 59.9 per 100 000. In the absence of any intervention, it is estimated that the number of new cases will reach 2.9 million by 2040 globally.[2]

In South Africa (SA), PCa is the second most common cancer in the population and the most common cancer in males.[5,6] In 2019, the age-standardised incidence rate for PCa was 59.3 per 100 000 males.[7] In the same year, 10 495 new cases of PCa were reported. It is estimated that the annual incidence of PCa cases will be as high as 42 181 in 2030.[8]

PCa is highest among males in the age group 60 - 79 years in SA.[7] The mean age at diagnosis was estimated at 71.6 years in KwaZulu-Natal Province and 68.9 years in the Western Cape Province in 2014. The main risk factor for PCa is advanced age, ethnicity, and family history of malignancy.[9] Lack of access to PCa screening, poor socioeconomic status, high unemployment rates and low literacy and education levels have been identified as reasons for delayed diagnosis in SA.[10]

As the burden of PCa increases the associated economic burden is expected to increase, partially due to a growing older population, advanced technologies, and advanced disease.[11-13] Globally, it is estimated that PCa will cost PPP624 billion (international dollars) between 2020 and 2050.[14] In the UK, the 5-year cost of managing PCa was estimated to be ~ZAR2.6 billion.[15] In eSwatini, the economic cost of managing PCa for a sample of 90 patients who were partially treated in SA was ZAR82.1 million in 2018.[16]

In SA, the cost of managing PCa is not fully known. In 2021, Gabela *et al.*[17] assessed the cost of managing public sector patients with metastatic castration-resistant PCa, and found that an average of ZAR161 540 is required to treat each patient over a period of 12 months. As the country grapples with the increasing burden of non-communicable diseases and the rising cost of healthcare, policy-makers are recognising the need for policies that are evidence-based and affordable. Accordingly, part of the process for the formal adoption of the national prostate clinical practice guidelines requires

that guidelines are costed. Based on available evidence, there is currently no detailed cost information on the direct medical cost of diagnosing and treating PCa, if patients are managed according to the national clinical guidelines for prostate cancer control and management.[18] The main aim of this study is to estimate the cost of treating localised PCa cases in a single year using the SA National Department of Health (NDoH) clinical guidelines. The cost estimates from such an exercise would provide insight that supports evidence-based policy adoption and healthcare budget planning.

Methods

A cost-of-illness study was conducted from the perspective of the NDoH. This approach is commonly used to estimate the economic burden of a disease within a specific population over a specific time period, typically a year.[19,20]

Study population and sample

The study population consisted of all SA males diagnosed with PCa in 2022. According to the National Cancer Registry, 10 944 PCa cases were diagnosed histologically in 2022.[21] The study sample consisted of all PCa cases, categorised by risk group. PCa risk stratification is done to determine disease prognosis and is used as a reference for choosing the most suitable treatment options for patients. PCa risk stratification is based on the prostate-specific antigen (PSA) level, clinical PCa stage and histological Gleason score. The main risk groups are low-risk disease (LRPCa), intermediate-risk disease (IRPCa) and high-risk disease (HRPCa). The national clinical guidelines for prostate cancer control and management describe each of the risk groups according to the criteria in Table 1.

The proportion of cases by PCa risk group was calculated using information obtained from the literature.[22] Published data describing the proportion of prostate biopsies by Gleason scores in Gauteng Province for the period 2012 - 2016 were used to determine the proportion of each PCa risk category.[22] Data from Gauteng were used because 24.1% of the national population resides in the province, and because it has the highest number of migrants from other provinces. Based on this, we assumed that the proportion of PCa by different risk category would be similar across other provinces. The average Gleason scores were compared with the Gleason scores used in the national clinical practice guidelines for PCa control and management to obtain the proportion of that PCa risk category.[18]

Parameters and data sources

The national clinical practice guidelines for PCa control and management, and expert advice, were employed to identify the resources used for the diagnosis and treatment of patients with PCa.[18] Resource identification was based on the treatment options specified for each risk category as described in the guidelines (see Table 2). When not detailed in the guidelines, the opinion of expert oncologists was used to determine the quantity of resources that would be used by a patient in each prostate cancer risk category in a year. Unit cost data were obtained from the Master Health Product List,[23] the Uniform Patient Fee Schedule (UPFS)[24] and the National Health Laboratory Services (NHLS) (Table 3).[25,26] The UPFS is used in the public sector to determine patient costs, while the MHPL contains a list of health products used in the public sector. Level 3 facility (academic and tertiary hospital) fees and specialist (oncologists, urologists, radiologists) consultation fees were used for professional fees. Fig. 1 presents the distribution and treatment pathway for PCa based on the national clinical practice guidelines for PCa control and management.

Costing approach

We assumed that all the men with confirmed prostate cancer in 2022 received diagnostic tests, and treatment according to their risk category. While disparities in healthcare access across the country and variations in treatment modalities exist, we estimated the cost for all patients using the proposed clinical guidelines to generate evidence for planning and budgeting purposes. The direct medical costs for diagnosis and treatment were calculated using a bottom-up gross costing approach. Cost per patient for each risk category was estimated by identifying resources used, measuring the units and assigning monetary value using tariffs and unit prices

Table 1. Criteria for prostate cancer risk stratification

Criterion	LRPCa	IRPCa	HRPCa
Clinical stage	T1 - T2a	T2b	T2c - T3a or T3b
Histological Gleason score	GS 2 - 6, ISUP 1	GS 7 (3+4) and/or ISUP 2/3	GS 7 (4+3) - 10 and/or >Gl 7 (ISUP 4/5)
PSA	<10 ng/mL	10 - 20 ng/mL	≥20 ng/mL

LRPCa = low-risk prostate cancer; IRPCa = intermediate risk prostate cancer; HRPCa = high-risk prostate cancer; T = clinical stage; GS = Gleason score; ISUP = International Society of Urological Pathology; PSA = prostate-specific antigen.
Source: Clinical guidelines for prostate cancer control and management.[18]

Table 2. Prostate cancer treatment options by risk category

Risk category	Treatment options
LRPCa	AS: if life expectancy >10 years WW: if life expectancy <10 years RP Radiotherapy: EBRT or IB
IRPCa	AS: if life expectancy >10 years WW: if life expectancy <10 years RP with pelvic LND Radiotherapy: EBRT or IB
HRPCa	RP with LND ADT Radiotherapy with ADT: EBRT or IB

LRPCa = low-risk prostate cancer; IRPCa = intermediate-risk prostate cancer; HRPCa = high-risk prostate cancer; AS = active surveillance; WW = watchful waiting; RP = radical prostatectomy; EBRT = external beam radiation therapy; IB = interstitial brachytherapy; LND = lymph node dissection; ADT = androgen deprivation therapy.

from the public sector. The total cost per patient was estimated by adding up the cost of consultations, diagnosis, laboratory tests, imaging and specific treatment costs such as chemotherapy and radiation therapy. Total annual costs were estimated using the number of cases reported by the cancer registry in 2022. Data analysis was conducted using Excel (Microsoft, USA). Costs data from previous years were adjusted for inflation using 2020 as the base year. All costs were reported in ZAR.

Sensitivity analysis

We conducted one-way sensitivity analysis by varying the different risk groups (LRPCa, IRPCa, HRPCa) by ~25% to account for uncertainty in the proportions in each group.

Ethical consideration

Ethical waiver was obtained from the University of the Witwatersrand's Medical Research Ethics Committee (ref. no. R14/49).

Results

Fig. 2 shows the distribution of PCa by risk groups in 2022. The number of cases were estimated at 2 189, 1 970 and 6 785 for LRPCa, IRPCa and HRPCa, respectively. A summary of the estimated patient costs and total cost for each treatment option in 2022 is provided in Table 4. The costs of managing a patient with LRPCa were estimated at ZAR7 200 and ZAR143 100 for active surveillance (AS) and external beam radiotherapy (EBRT), respectively, over a period of 12 months from diagnosis. The total per patient cost for LRPCa was estimated at ZAR183 300. The total cost per patient with IRPCa was estimated at ZAR188 300. The cost of managing a patient with HRPCa using EBRT was estimated at ZAR151 800. HRPCa cost per patient was estimated at ZAR207 400.

The total cost for treating all new PCa cases was estimated to be ZAR2.1 billion. Patients with LRPCa had the lowest total costs, with costs estimated to range between ZAR15.9 million and ZAR313.3 million. Patients with HRPCa had the highest total costs, with costs estimated to range between ZAR100.9 million and ZAR1.0 billion. Fig. 2 shows the distribution of the costs across the risk groups.

Sensitivity analysis

The results from the sensitivity analysis are presented in in Table 5. The overall costs for managing PCa are estimated to range from ZARR1.6 billion to ZAR2.7 billion. For LRPCa, the total cost ranged from ZAR301 million to ZAR501.7 million. For IRPCa,

Table 3. Parameters and data sources

Category and parameter	Unit cost, ZAR	Source
Full blood count	58.01	NHLS[25]
Urea and electrolytes	85.27	NHLS[25]
CMP	91.05	NHLS[25]
DRE		
Facility fee (L3)	135	UPFS[26]
Specialist medical practitioner	289	UPFS[26]
PSA	129.52	NHLS[25]
Transrectal ultrasound		
Radiology facility fee (L3)	284	UPFS[26]
Radiology specialist medical practitioner	466	UPFS[26]
Prostate biopsy (needle/punch)		UPFS[26]
Procedure	210	UPFS[26]
Anaesthetic specialist medical practitioner (Cat A)	403	UPFS[26]
Urologist	124	UPFS[26]
Prostate biopsy (incisional)		UPFS[26]
Anaesthetic specialist medical practitioner (Cat B)	689	UPFS[26]
Ambulatory procedure facility fee (L3)	210	UPFS[26]
Urology specialist medical procedure	135	UPFS[26]
CT scan		UPFS[26]
Radiology specialist (Cat D)	2 273	UPFS[26]
Radiology facility fee	1 316	UPFS[26]
Chest X-ray		UPFS[26]
Radiology specialist (Cat B)	466	UPFS[26]
Radiology facility fee (L3)	284	UPFS[26]
AS		UPFS[26]
Outpatient facility fee (L3)	135	UPFS[26]
Outpatient specialist medical practitioner	289	UPFS[26]
PSA	129.52	NHLS[25]
Perineal prostatectomy radical		
Theatre procedure facility fee (L3)	19 524	UPFS[26]
Anaesthetic specialist medical practitioner (Cat C)	2 416	UPFS[26]
Urology specialist medical practitioner (Cat D)	2 574	UPFS[26]
Medical oncologist	2 574	UPFS[26]
Chemotherapy		
Outpatient per day		UPFS[24]
Outpatient facility fee	135	UPFS[24]
Outpatient specialist medical practitioner	289	UPFS[24]
Infusion chemotherapy		UPFS[24]
Infusion chemotherapy facility fee	1 018	UPFS[24]
Infusion chemotherapy professional fee	2 059	UPFS[24]
Chemotherapy – docetaxel	370	MHPL[24]
ADT first line – goserelin	816.5	MHPL[24]
Corticosteroids		
Prednisone	7.44	MHPL[24]
Pharmacy fee	50	
Radiation manual planning – special technique		
Facility fee	2 803	UPFS[24]
Professional fee	1 200	UPFS[24]
Radiation conventional planning – special technique		UPFS[24]
Facility fee	10 896	UPFS[24]
Professional fee	4 667	UPFS[24]
3D planning (with CT) – special technique (+MLC)		UPFS[24]
Facility fee	26 799	UPFS[24]
Professional fee	8 686	UPFS[24]

CMP = comprehensive metabolic panel; DRE = digital rectal examination; L3 = level 3; PSA = prostate-specific antigen; Cat = category; CT = computed tomography; AS = active surveillance; ADT = androgen deprivation therapy; MLC = multileaf collimator; NHLS = National Health Laboratory Service; UPFS = Uniform Patient Fee Schedule; MHPL = Master Health Product List.

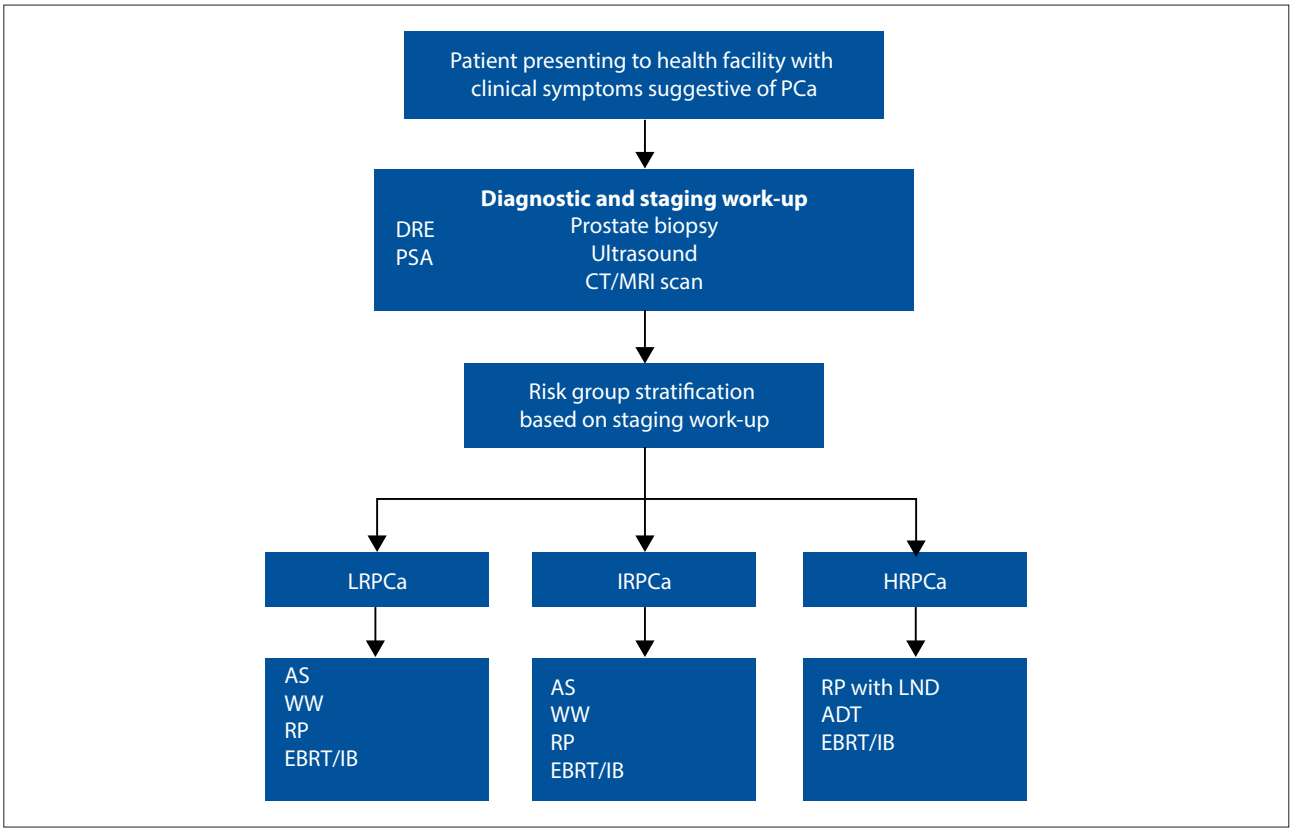

Fig. 1. Clinical pathway for managing prostate cancer (PCa). (DRE = digital rectal examination, PSA = prostate-specific antigen, CT = computed tomography, MRI = magnetic resonance imaging, LRPCa = low-risk prostate cancer; IRPCa = intermediate-risk prostate cancer; HRPCa = high-risk prostate cancer; AS = active surveillance; WW = watchful waiting; RP = radical prostatectomy; EBRT = external beam radiotherapy, IB = interstitial brachytherapy.)

Table 4. Total cost of managing prostate cancer in South Africa in the first 12 months (*N*=10 944)

Risk group	Treatment option	Cost per patient, ZAR	Total cost, ZAR
LRPCa			
	WW/AS	7 265	15 903 471
	RP	32 957	72 136 457
	EBRT	143 156	313 341 604
LRPCa total		183 379	401 381 532
IRPCa			
	WW/AS	8 926	17 584 294
	RP with LND	34 617	68 193 981
	EBRT	144 817	285 278 614
IRPCa total		188 361	371 056 889
HRPCa			
	ADT only	14 874	100 926 697
	RP with ADT	40 672	275 975 251
	EBRT with ADT	151 872	1 030 496 487
HRPCa total		207 419	1 407 398 435
Total		579 160	2 179 836 856

LRPCa = low-risk prostate cancer; IRPCa = intermediate-risk prostate cancer; HRPCa = high-risk prostate cancer; WW = watchful waiting; AS = active surveillance; RP = radical prostatectomy; EBRT = external beam radiation therapy; LND = lymph node dissection; ADT = androgen deprivation therapy.

Table 5. Sensitivity analysis for total costs of managing prostate cancer in South Africa

Cancer stage	Baseline, ZAR	Lower estimate, ZAR	Upper estimate, ZAR
LRPCa	401 381 531	301 036 148	501 726 914
IRPCa	371 056 889	278 292 667	463 821 111
HRPCa	1 407 398 435	1 055 548 826	1 759 248 044
Total cost	2 179 836 855	1 634 877 641	2 724 796 069

LRPCa = low-risk prostate cancer; IRPCa = intermediate-risk prostate cancer; HRPCa = high-risk prostate cancer.

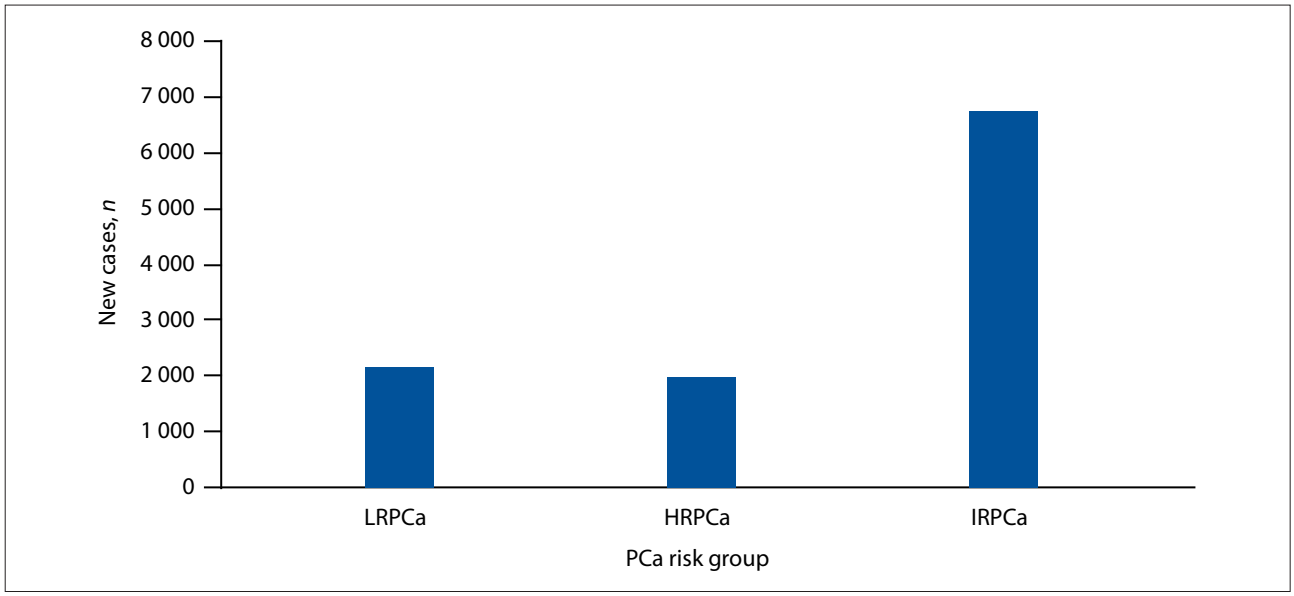

Fig. 2. Prostate cancer (PCa) cases stratified by risk group in 2022. (LRPCa = low-risk prostate cancer; HRPCa = high-risk prostate cancer; IRPCa = intermediate-risk prostate cancer.)

the lowest estimate was ZAR278.2 million, while the highest was ZAR463.8 million. The total cost ranged between ZAR1 billion and ZAR1.7 billion for HRPCa.

Discussion

The aim of this study was to estimate the direct medical costs for PCa diagnosis and treatment using the national clinical practice guidelines. The total cost of managing 10 944 PCa patients ranged between ZAR1.6 and ZAR2.7 billion. The total costs of managing patients with LRPCa, IRPCa and HRPCa were estimated at ZAR401 million, ZAR371 million and ZAR1.4 billion, respectively. The total cost per patient increased from ZAR183 000 in the LPRCa group to ZAR207 000 in the HRPCa group.

The findings of this study are consistent with those from previous studies that showed that PCa stage progression is a crucial determinant of treatment costs.[16,27,28] In Eswatini, the cost of treating stages III (USD1.2 million) and IV (USD2.1 million) were shown to be higher than treatment of stages I (USD0.5 million) and II (USD0.8 million).[16] Similar results were observed in Canada and Iran.[27,28]

The results of this study have policy implications. Our results demonstrate the potential cost-savings of preventing and identifying PCa early. Policy-makers should therefore strengthen primary healthcare for the purposes of increased screening in high-risk populations to identify cases with early disease. Approaches that aim to bring high-risk patients in contact with the health system in the areas where they live, work and socialise are likely to be more effective. This can be done by incorporating PCa screening questions into existing health programmes and activities taking place in primary healthcare facilities and within the community. To improve health-seeking behaviour, PCa awareness campaigns could be integrated into community health worker programmes and health education programmes. This could also be achieved through collaboration with key stakeholders such as traditional healers and religious leaders in communities. Furthermore, strengthening primary healthcare interventions for PCa should be done in conjunction with investment in primary healthcare care infrastructure so that there is capacity to diagnose and stage patients early without the need for referral to specialised services.

A situational analysis on the availability and distribution of the diagnostic and treatment interventions mentioned in the clinical guidelines is also recommended. In addition, the analysis should aim to identify factors associated with current challenges, such as shortage and lack of skilled health professionals, long waiting times and poor referral pathways.[29] A situational analysis could also assist in identifying the underlying issues related to unutilised funds for cancer in provinces such as Gauteng, where millions of ringfenced funds for treatment remain unspent.[30]

Study strengths and limitations

The study has some strengths and limitations. This is the first known study to estimate the cost of PCa diagnosis and treatment using national PCa clinical guidelines in SA. The results of this study have the potential to contribute to evidence-based decision-making for sustainable healthcare financing of prostate cancer management. The study could also provide guidance for costing of similar guidelines under the National Health Insurance.

Several limitations were identified. The study estimated only the direct medical costs of localised PCa, and metastatic cancer was excluded. It was assumed that all patients reported in the cancer registry will have had a digital rectal examination, a PSA test and a biopsy (for histological diagnosis), as well as an ultrasound and computed tomography or magnetic resonance imaging scan for staging; however, possibly not all patients receive this in the clinical setting, therefore this assumption may have overestimated the costs. Indeed, disparities in treatment modalities across facilities are real, leading to unequal access to cancer services.

Population costs were estimated for all new cases identified in 2022. Our total costs could be an overestimate as our study is from the public sector perspective, while some cases may have been treated in the private sector.

The estimated population costs for patients with HRPCa included all new cases with HRPCa as well as patients with disseminated disease. This has likely underestimated the total population costs, as some patients with disseminated disease are likely to receive radiotherapy as well as additional treatments such as chemotherapy and palliation. Despite these limitations, our estimates provide valuable insights for policy-making in the context of prostate cancer management.

Conclusion

This study estimated the cost for diagnosis and treatment of PCa according to national clinical guidelines for PCa control and management. The costs for diagnosis and treatment of PCa showed a direct relationship with the level of PCa. EBRT was the main cost driver for treatment across all PCa risk categories.

The study highlights the potential for cost-saving if patients with operable disease are identified early and treated with radical prostatectomy. Policy-makers should strive to achieve earlier PCa identification and management, to reduce the need for high-cost interventions.

Data availability. We used publicly available data to conduct our analysis. The data are available from the referenced sources.

Declaration. None.

Acknowledgements. The authors would like to acknowledge Profs Paul Ruff and Georgia Demetriou for their input on the services for managing PCa.

Author contributions. ET, MK, MKB, KH conceptualised the study. MK drafted the protocol under the guidance of ET and MKB. MK and ET collected and analysed the data. MK drafted the initial report. ET, MKB, WM, KH, SG and HS reviewed the initial report. ET and MK drafted the manuscript. All authors read and approved the final manuscript.

Funding. This study received funding from the UK National Institute for Health and Care Research (grant numbers NIHR133252) using UK aid from the UK Government to support global health research. Additional funding came from the South African Medical Research Council (grant number 23108).

Conflicts of interest. None.

1. Adeloye D, David RA, Aderemi AV, et al. An estimate of the incidence of prostate cancer in Africa: A systematic review and meta-analysis. PLoS ONE 2016;11(4):e0153496. https://doi.org/10.1371/journal.pone.0153496
2. James ND, Tannock I, N'Dow J, et al. The Lancet Commission on prostate cancer: Planning for the surge in cases. Lancet 2024;403(10437):1683-1722. https://doi.org/10.1016/S0140-6736(24)00651-2.
3. Wang L, Lu B, He M, Wang Y, Wang Z, Du L. Prostate cancer incidence and mortality: Global status and temporal trends in 89 countries from 2000 to 2019. Front Public Health 2022;10:811044. https://doi.org/10.3389/fpubh.2022.811044
4. Bray F, Laversanne M, Sung H, et al. Global cancer statistics 2022: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. CA Cancer J Clin 2024;74(3):229-263. https://doi.org/10.3322/caac.21834
5. Le Roux HA, Urry RJ, Sartorius B, Aldous C. Prostate cancer at a regional hospital in South Africa: We are only seeing the tip of the iceberg. S Afr J Surg 2015;53(3 and 4):57-62.
6. Seraphin TP, Joko-Fru WY, Kamaté B, et al. Rising prostate cancer incidence in sub-Saharan Africa: A trend analysis of data from the African Cancer Registry Network. Cancer Epidemiol Biomarkers Prevent 2021;30(1):158-165. https://doi.org/10.1158/1055-9965.EPI-20-1005.
7. Statistics South Africa. Cancer in South Africa (2008 - 2019). Pretoria: Stats SA, 2023.
8. Finestone E, Wishnia J. Estimating the burden of cancer in South Africa. S Afr J Oncol 2022;6(0):a220. https://doi.org/10.4102/sajo.v6i0.220
9. Graham NJ, Souter LH, Salami SS. A systematic review of family history, race/ethnicity, and genetic risk on prostate cancer detection and outcomes: Considerations in PSA-based screening. Urologic Oncol 2025; 43(1):29-40. https://doi.org/10.1016/j.urolonc.2024.06.002
10. 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 Family Pract 2023;65(1):e1-e10. https://doi.org/10.4102/safp.v65i1.5553
11. Roehrborn CG, Black LK. The economic burden of prostate cancer. BJU Int 2011;108(6):806-813. https://doi.org/10.1111/j.1464-410X.2011.10365.x.
12. Sartorius K, Sartorius B, Govender PS, Sharma V, Sherriff A. The future cost of cancer in South Africa: An interdisciplinary cost management strategy. S Afr Med J 2016;106(10):949. https://doi.org/10.7196/SAMJ.2016.v106i10.11375.
13. Molinier L, Castelli C, Bauvin E, et al. Cost study of the clinical management of prostate cancer in France: Results on the basis of population-based data. Euro J Health Econo 2011;12(4):363-371. https://doi.org/10.1007/s10198-010-0250-6
14. Chen S, Cao Z, Prettner K, et al. Estimates and projections of the global economic cost of 29 cancers in 204 countries and territories from 2020 to 2050. JAMA Oncol 2023;9(4):465. https://doi.org/10.1001/jamaoncol.2022.7826
15. Marais B, Klopper G, John J. Prostate cancer perspective: Africa versus the world. S Afr Med J 2024;114(4):e1950. https://doi.org/10.7196/SAMJ.2024.v114i4.1950.
16. Ngcamphalala C, Östensson E, Ginindza TG. The economic burden of prostate cancer in Eswatini. BMC Health Serv Res 2022;22(1):483. https://doi.org/10.1371/journal.pone.0250113.
17. Gabela NC, Bhadree S, Mathibe LJ. Costs of managing castrate-resistant metastatic prostate cancer patients at Inkosi Albert Luthuli Central Hospital. S Afr J Surg 2021;59(4):176-178.
18. National Department of Health. Clinical Guidelines for Prostate Cancer Control and Management. Pretoria: NDoH, 2019.
19. Jo C. Cost-of-illness studies: Concepts, scopes, and methods. Clin Mol Hepatol 2014;20(4):327-337. https://doi.org/10.3350/cmh.2014.20.4.327
20. Boachie MK, Thsehla E, Immurana M, Kohli-Lynch C, Hofman KJ. Estimating the healthcare cost of overweight and obesity in South Africa. Glob Health Action 2022;15(1):2045092. https://doi.org/10.1080/16549716.2022.2045092
21. National Cancer Registry. Summary Statistics of cancer diagnosed histologically in 2022. Pretoria: National Health Laboratory Services, 2024.
22. Cassim N, Ahmad A, Wadee R, Rebbeck TR, Glencross DK, George JA. Prostate cancer age-standardised incidence increase between 2006 and 2016 in Gauteng Province, South Africa: A laboratory data-based analysis. S Afr Med J 2020;111(1):26. https://doi.org/10.7196/SAMJ.2020.v111i1.14850
23. National Department of Health. Master Health Product List. Pretoria: NDoH, 2022.
24. National Department of Health, South Africa. Uniform Patient Fee Schedule Annex A6 Oncology. Pretoria: NDoH, 2022.
25. National Health Laboratory Service, South Africa. NHLS state price list. Johannesburg: NHLS, 2018.
26. National Department of Health, South Africa. Annexure A3 Uniform Patient Fee Schedule. Pretoria: NDoH, 2022.
27. Krahn MD, Zagorski B, Laporte A, et al. Healthcare costs associated with prostate cancer: Estimates from a population-based study. BJU Int 2010;105(3):338-346. https://doi.org/10.1111/j.1464-410X.2009.08758.x
28. Mojahedian MM, Toroski M, Keshavarz K, Aghili M, Zeyghami S, Nikfar S. Estimating the cost of illness of prostate cancer in Iran. Clin Ther 2019;41(1):50-58. https://doi.org/10.1016/j.clinthera.2018.11.001
29. Ramutumbu NJ, Ramathuba DU, Maputle MS. Barriers to accessing oncology services for effective cancer care in the public health institutions in Limpopo Province, South Africa: A qualitative study. Nurs Rep 2023;13(3):956-968. https://doi.org/10.3390/nursrep13030084
30. South African Legal Information Institute. Cancer Alliance v Member of Executive Council for Health Gauteng Province and Others (2024/071038) (2025) ZAGPJHC 357 (2025) 2 All SA 668 (GJ) (27 March 2025).

Received 15 October 2024; accepted 2 December 2025.