Summary of Literature Review of Factors Related to Racial Disparities in Prostate Cancer Incidence and Mortality

Factor(s)	Reference	Design, data collection	Major Findings
Increased genetic predisposition to PCa and biochemical evidence of more aggressive disease	Moul et al, 1995 (1)	Case series and cohort analysis study of newly diagnosed PCa* patients (1990-1994) and PCa patients treated by RP* with tumour volume assessment (1993-1994)	BM* with newly diagnosed PCa had higher PSA values at initial diagnosis, likely due to larger tumour volumes within TNM (clinical) stage categories
	Powell et al, 2010 (2)	Review of autopsy data from 1,056 men who died of causes other than PCa, as well as RP and SEER* databases	BM were four times more likely to be diagnosed with advanced or metastatic PCa
	Conti et al, 2017 (3)	Genome-wide association meta-analysis of 10,202 case subjects and 10,810 control subjects	Identified novel signals on chromosomes 13q34 and 22q12 with risk-associated alleles for PCa found only in men of African ancestry
	Mahal et al, 2017 (4)	Retrospective cohort study of 390,259 men diagnosed with PCa between 2004 and 2011	PCa outcomes are significantly worse in BM in PSA-eligible populations and BM present with 30% increase in disparity of presentation with of metastatic disease and 20% increase of PCa hazard/mortality
	Miller et al, 2018 (5)	Analysis of participants from the PLCO* Screening Trial including cancer characteristics, diagnoses, biopsy follow-up and tumour characteristics	BM were significantly more likely to undergo biopsy than white men and tumours in BM were more likely to be aggressive and to metastasize
	Deka et al, 2020 (6)	Retrospective cohort study of 8,726 men with low-risk PCa followed for median of 7.6 years	BM demonstrated a statistically significant increase in the incidence of disease progression
	Rayford et al, 2021 (7)	Multi-institutional retrospective analysis including genomic profiling of 1,152 patients who underwent radical prostatectomy	BM presented with more inflammatory and immune-active tumours, lower DNA repair, and higher genomic risk of metastasis

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Social determinants of health and socioeconomic barriers disproportionately affecting BM	Carpenter et al, 2010 (8)	Retrospective database study of 18,067 men diagnosed with PCa (1994-2002) from SEER-Medicare database	BM diagnosed with PCa are more likely to have longer PSA screening interval prior to diagnosis and greater likelihood of no pre-diagnosis use of PSA screening
	Ziehr et al, 2015 (9)	Retrospective database study of 102,486 men with localized high-risk PCa from 2004-2010 in SEER database plus census-tract-level income data	BM were less likely to receive definitive therapy for PCa, and BM in the lowest income quintile suffered the greatest PCa mortality
	Dess et al, 2019 (10)	Multiple-cohort study of 306,100 patients with PCa	With access to similar care and standardized treatment, BM with non-metastatic PCa had comparable PCa-specific mortality to white men
	Coughlin, 2020 (11)	Review of literature about social determinants of health and PCa survival	Poverty, lack of education, immigration status, lack of social support, and social isolation PCa outcomes such as incidence, stage at diagnosis, survival
	Stern et al, 2021 (12)	Retrospective database study using data from census of 51,530 men who received PCa diagnosis between 1992-2010	No increased risk of PCa-specific mortality among Black men when adjusting for non-biological differences
Lack of representation of Black men in clinical trials	Rencsok et al, 2020 (13)	Review of 72 global phase III and IV PCa clinical trials (1987 to 2016), representing 893,378 individual participants	Of trials reporting race data, participants were overwhelmingly white men (96% of study population); Africa & the Caribbean comprised of only 3% of countries included
	Saltzman et al, 2022 (14)	Database analysis of 312 trials registered in ClinicalTrials.gov	Decreased participation rates among BM and Hispanic men in PCa and ED* clinical trials
	Owens-Walton et al, 2022 (15)	Database analysis of 341 phase II and III interventional trials in prostate, kidney, and bladder cancers in SEER database from 2000 to 2017	Of trials reporting race data, Black and Asian patients were poorly represented across trials of all three cancer types

Community-related barriers, i.e., lack of adequate health information, medical mistrust	Woods et al, 2004 (16)	Mixed-methods longitudinal cohort study of 277 BM and 94 providers exploring beliefs and behaviours about PCa screening among BM	5 themes were identified as critical: lack of knowledge, communication, social support, quality of care, and sexuality; BM demonstrated medical mistrust and disconnectedness from healthcare system which contributed to decreased participation in screening
	Shungu et al, 2021 (17)	Qualitative study of 21 men in 5 focus groups in 2019, assessing factors affecting informed decision-making about PCa screening among BM	BM demonstrated confusion about details of PCa screening and how to make informed decisions; participants were motivated by racial disparities data and wished for better education on the topic
Experimental/ simulation studies estimating differences in harm-risk benefit	Nyame et al, 2021 (18)	Two microsimulation models of PCa data tied to SEER database projected the impact of various screening strategies (different screening intervals, starting & stopping ages, biopsy utilization)	Restricting screening of BM to 45-69 years would achieve substantial mortality reduction (26% to 29%) with low overdiagnosis (51-61 per 1000)
	Basourakos et al, 2022 (19)	Model estimates of overdiagnosis and overtreatment of PCa using SEER registry and US Census data (1986-2016) to estimate NND and NNT across racial groups	Quantifying overdiagnosis with estimates shows a harm-benefit trade-off of PSA screening (NNT and NND) that is more favourable to BM than other races, indicating potential increased value in screening BM

BM = Black/African-American men;
PCa = prostate cancer;
RP = radical prostatectomy;
SEER = Surveillance, Epidemiology, and End Results Program;
PSA = prostate-specific antigen;
PLCO = Prostate, Lung, Colon, Ovarian Cancer Trial;
ED = erectile dysfunction;
NND = number needed to diagnose;
NNT = number needed to treat

Appendix 1 - References

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