

# Prostate Cancer in Jamaica and the Wider Caribbean: It is Time to Consider Screening

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## INTRODUCTION

Prostate cancer (PCa) is the second most frequently diagnosed cancer in the world (1) and the leading cancer affecting men in Jamaica (2). If PCa is identified early in its natural history, it is eminently treatable with great potential for cure. The Caribbean has the highest age standardized PCa-specific mortality rates in the world (1). Why is this so and what can be done to reduce the morbidity and mortality associated with PCa in the Caribbean?

Prostate cancer has a variable natural history ranging from slowly growing indolent cancers at one end of the spectrum to aggressive cancers with high Gleason scores at the other end. Early disease is usually asymptomatic but detectable by screening methods. To date, most cancers in Jamaica are identified after symptoms appear (3). This paper examines the role of screening and argues for increased screening in the population.

**Keywords:** Caribbean, prostate cancer, screening

High rates of PCa have been reported in several Caribbean territories and PCa may rightly be considered a major health problem in most of these countries. Of greater concern is the recent report on global cancer statistics indicating that the Caribbean region has the highest age-standardized PCa-specific mortality rate in the world at 26.3/100 000/year (1). In Jamaica, the local cancer registry which records all cancers diagnosed in the Kingston and St Andrew area reports that the age-standardized PCa incidence for the period 2003–2007 was 78.1/100 000/year (2) making it by far the leading cancer affecting men in Jamaica. Significantly, PCa is also the leading cause of male cancer-related deaths in Jamaica at 53.9/100 000/year (4). In the French territory, Guadeloupe, PCa incidence has recently been reported at 168/100 000/year (5) and in Tobago, a high prevalence of screen-detected PCa three times that typically seen in Caucasian populations has been reported (6). Prostate cancer is also three times more common in Afro-Trinidadians compared to Indo-Trinidadians (7). In Barbados, incidence and mortality rates for PCa are high at 160.4/100 000/year and 63.2/100 000/year respectively, using the United States (US)

population as standard (7). The high incidence of PCa amongst Afro-Caribbean men is also seen in emigrants to the United Kingdom (UK) and their descendants with incidence rates being three times higher in these men compared to Caucasians in the UK (8).

Despite the increasing use of prostate specific antigen (PSA) since its introduction to Jamaica in 1989, approximately 50% of men with newly diagnosed PCa in Kingston and St Andrew are still discovered on the basis of symptoms and signs and therefore present with locally advanced and metastatic disease with its attendant morbidity and mortality (3). Indeed, no appreciable downward stage migration has been observed in Jamaica as was experienced over a decade ago in the United States of America (USA) with widespread use of PSA as a screening tool.

While PCa does not discriminate between men of different socio-economic positions, its impact upon men and their families from the lowest socio-economic stratum is especially devastating. These men are the ones most likely to present with advanced and incurable disease through lack of awareness and inaccessibility to early detection. Advanced PCa presents a significant caregiving, emotional and financial burden to the families of these mostly middle-aged and elderly men. Given that increasing age is a risk factor for PCa, the ageing of Caribbean populations is likely to be accompanied by an increasing prevalence of PCa and a corresponding increase in the financial and caregiving burden to families given the cancer's relatively long natural history. There is also the financial burden to the already fragile and resource-limited health sectors of the developing countries of the Caribbean. The costs incurred in treating advanced disease and castration-resistant PCa and its resultant complications are known to outstrip the costs involved in the early detection and treatment of organ-confined disease (9). Management of advanced disease usually involves recurring costs for expensive drugs as well as frequent clinic and hospital visits, typically for the remainder of the patient's lifetime. In the terminal phase of the disease, significant costs are incurred in the rendering of palliative treatments which may involve expensive interventional radiological, urological and radiotherapy interventions.

## SCREENING

Screening is used to discover clinically significant disease early in the disease process to prevent mortality and morbidity through treatment and has become widely accepted in health-care. There are several success stories. Mammography for breast cancer and Papanicolaou smears for cervical cancer are examples of population screening while antenatal screening

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and faecal blood for colon cancer are examples of successful “high risk” screening. Not all screening programmes are without debate, however, and PCa screening has engendered significant debate and controversy over the years. Opponents of PCa screening argue that there has not been unequivocal evidence of net benefits over harm and that there is a significant risk of over-detection and over-treatment of tumours that would not have caused morbidity or death. Proponents argue that screening can identify men who need treatment and reduce the burden of disease. Surveys done in North America reveal that most primary care physicians favour prostate screening (10).

Early detection programmes for PCa exist in Jamaica through the work of the Jamaica Cancer Society in collaboration with the Jamaica Urological Society. Men 40 years and older with at least a 10–15-year life expectancy are encouraged to have an annual digital rectal examination (DRE) and PSA blood test. Very few men, however, seem to heed this call. A recent study by Morris of 2000 Jamaican men over 55 years revealed that only 35% of them had done a prostate check (Morris, 2009 – Personal communication). Forty-one per cent of the men reported that the reason for this was that they had not been advised by their doctors to have one done.

Health behaviour in general is gender related with women being more likely than men to practice health-promoting behaviours. Seeking healthcare is viewed by men to be associated with femininity while illness is associated with weakness and vulnerability (11). These gender differences in health-seeking behaviour is exemplified by statistics on screening from the Jamaica Cancer Society indicating that in 2009 whereas 13 168 women presented for mammography and pap smears, only 464 men presented for prostate cancer screening in the corresponding period (personal communication).

Other significant barriers exist to accessing prostate cancer screening by Jamaican men. Research is required in this area but these barriers probably include cultural views and expectations of manhood, poverty, ignorance, apathy, fatalism, stoicism, denial of risk, difficulty accessing preventive care, and specific issues related to the digital rectal examination (DRE). Many men resist having the DRE possibly due to its cultural unacceptability and existing taboos regarding anal penetration of whatever kind. However, reluctance to have the DRE is not unique to Jamaican men as African-Canadian men have been noted to avoid the DRE due to the perceived association with homosexuality (11).

There is ignorance surrounding the best application of the tests used in the early detection of PCa amongst the local medical profession. For example, men with limited life expectancy, by virtue of age or co-morbid illness, who would not benefit from early detection and treatment of PCa are commonly screened for the disease by general practitioners. Also, general practitioners continue to send men suspected of having PCa to have a transrectal ultrasound without a concomitant prostate biopsy in the mistaken belief that the ultrasound alone may accurately exclude PCa. There is also ignorance regard-

ing the variety of treatments available commensurate with the stage of the disease and their potential side-effects. Also present are special interest groups promoting their own preventive or curative fix for PCa without any basis in robust medical evidence. These persons add to the already high levels of ignorance, myth and speculation regarding the disease by promoting half-truths and unproven treatments. A fully informed, educated and aware public is the best antidote for this.

### Is screening effective?

The informed medical practitioner and lay public alike may be confused by the ongoing controversy within the international medical community regarding screening for prostate cancer. This confusion stems from the question of whether prostate cancer screening achieves its stated objective of reducing prostate cancer-specific mortality whilst minimizing the potential for harm amongst screened individuals in robust randomized controlled trials (RCTs). A reduction in cancer-specific mortality in a well conducted RCT is the ‘acid test’ of a cancer screening programme’s efficacy. These experimental studies eliminate well-known biases and confounding variables, particularly those that specifically arise during observational studies on screening. These are lead-time bias, length bias, and the healthy volunteer bias, *inter alia*. The first refers to an apparent increase in length of survival of screened individuals that simply results from diagnosing the tumour at an earlier stage in its natural history, the second refers to the apparent improvement in survival that accrues from diagnosing a greater proportion of more slowly growing tumours in screen-detected cancers, the last arises from the higher proportion of healthier persons amongst those usually volunteering for screening compared to persons with routinely detected clinical cancers.

The results of two large RCTs of prostate cancer screening were released in 2009. One trial, the European Randomized Study of Screening for Prostate Cancer (ERSPC), reported a 20% reduction in prostate-cancer specific mortality due to PSA-based screening (12), while the other, the Prostate Lung Colorectal and Ovarian (PLCO) trial failed to demonstrate any benefit to PSA screening (13). Instead of bringing clarity to the debate, the results of the trials added to the already existing conundrum by arriving at diametrically opposite conclusions. The disparity in outcome has been attributed to substantial ‘contamination’ of the control arm in the PLCO trial. Contamination refers to the phenomenon whereby study participants randomly allocated to the control arm of the study instead receive unauthorized investigation and treatment earmarked for the other arm of the study through non-compliance with the study protocol. This would lead to an underestimation of the efficacy of screening. Some degree of contamination also took place in the ERSPC trial. A re-analysis of the ERSPC study adjusting for non-attendance and contamination instead of doing an intention-to-screen analysis demonstrated a 31% instead of a 20% reduction in prostate cancer mortality of screened men (14).

The results of three other RCTs of prostate cancer screening have been released since the initial two in 2009. One of these, the Goteburg trial, demonstrated a clear benefit to screening with screened men enjoying a 50% reduction in mortality (15). In this trial, 293 men needed to be screened and 12 men treated in order to prevent one death from the disease. On the contrary, a population-based trial from Sweden with more than 20 years of follow-up data did not demonstrate a benefit to screening (16). One criticism of the latter study is that men were screened by DRE only for a significant period of the trial. The third trial with 15 years follow-up, published in 2011, demonstrated a benefit to screening (17). The controversy rages on.

### Should the Caribbean screen for prostate cancer?

Based on what is currently known, can prostate cancer screening be recommended for the Caribbean? Would it positively impact upon the health of Caribbean people and would it be a feasible and cost-effective intervention? Would it also be able to compete with other health interventions for the limited funding for healthcare that is available? The authors do not pretend to be able to answer these questions but given the high prostate cancer mortality rates in the Caribbean and the ageing of the populations, we believe that it is time for the relevant authorities in the Caribbean territories to consider this issue. The criteria which should be satisfied for implementing a screening programme as suggested by Junger and Wilson in 1968 should serve as a guide in considering this potentially contentious issue. The criterion that the disease be an important health problem is readily satisfied by the high mortality rates in the Caribbean. Its natural history is reasonably well-known and it has a clear preclinical phase which is identifiable through the use of the tumour marker PSA. The operating characteristics of PSA are well-known and favourable towards cancer detection. On weighing the available evidence relating to the efficacy of PSA-based prostate cancer screening, one could infer that there would be a net benefit to screening in reducing prostate cancer specific mortality in high risk Black populations. The screening tests are relatively inexpensive and the PSA test is acceptable to men although cultural resistance to the DRE exists. There exist sufficient resources and personnel for follow-up and treatment of identified disease, at least in some Caribbean territories where there are enough trained urologists. However, more radiation and clinical oncologists are needed, particularly for some high risk cancers where a multidisciplinary approach is favoured. On the downside, over-detection and over-treatment of clinically insignificant cancers in screened men with the potential for net harm over benefit is a real possibility as suggested by the ERSPC. However, this can be minimised by selecting active surveillance as a treatment option for men with low-risk screen-detected PCa that satisfy specific criteria. Reports to date suggest that this is a viable option for management of low-risk disease that does not seem to put men at risk should delayed treatment for subsequent tumour progression become necessary (18).

It is time for the Ministries of Health of the various Caribbean territories to seriously consider doing feasibility studies on PCa screening as something urgently needs to be done to stem the comparatively high mortality rate affecting Caribbean men from this common disease.

### SUMMARY

Prostate cancer is a serious health problem in the Caribbean with high incidence and mortality rates affecting a predominantly Black population. Research is required to help elucidate the importance of locally relevant modifiable risk factors so that preventive strategies may be instituted both at the population and individual levels. Also, effective secondary preventive strategies such as mass screening and other interventions should be urgently considered to bring this common disease under control and reduce not only the mortality but the morbidity and accompanying caregiver burden.

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