Prostate Cancer Early Detection Program Recruitment Methods and Show Rates in Men at High Risk

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Abbreviations and Acronyms

AA = African-American

DRR = direct response radio

FCCC = Fox Chase Cancer Center

PCA = prostate cancer

PRAP = Prostate Cancer Risk Assessment Program

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Purpose: Men with a family history of prostate cancer and black men are at higher risk for prostate cancer. Recruitment and retention of these men at high risk into early detection programs is challenging. We report a comprehensive analysis of recruitment methods, show rates and participant factors from the Prostate Cancer Risk Assessment Program, a prospective, longitudinal prostate cancer screening study.

Materials and Methods: Men 35 to 69 years old were eligible for recruitment if they had a family history of prostate cancer, were black or had a *BRCA1/2* mutation. Recruitment methods were analyzed using standard statistical methods with respect to participant demographics and presentation to the first program appointment.

Results: Of 707 men recruited 64.9% presented to the initial program appointment. More men were recruited via radio than via referral or other methods (chi-square = 298.13, $p < 0.0001$). Men recruited by radio were more likely to be black ($p < 0.001$), less educated ($p = 0.003$) and not married or partnered ($p = 0.007$), and have no prostate cancer family history ($p < 0.001$). Men recruited by referral had a higher income ($p = 0.007$) and were more likely to attend the initial program visit than those recruited by radio or other methods (chi-square = 27.08, $p < 0.0001$).

Conclusions: This comprehensive analysis shows that radio led to higher recruitment of black men with lower socioeconomic status. However, these men at high risk have a lower presentation rate for prostate cancer screening. Targeted motivational measures must be studied to improve the show rate for prostate cancer risk assessment in these men at high risk.

Key Words: prostate, prostatic neoplasms, mass screening, patient participation, African Americans

PROSTATE cancer is the second leading cause of cancer related deaths in men in the United States.[1] Men with a family history of PCA and AA men are at 2 to 7 times increased risk for the disease.[1,2] PCA screening remains controversial in men at average risk. Recent randomized PCA screening studies show no or marginal benefit to PCA screening.[3,4] However, multiple professional societies recommend discussion of early detection measures in men at high risk (men with a family history and AA men) with their physicians.[5,6] Thus, there is a particular need to study screening strategies in men at high risk to personalize early detection approaches and PCA risk assessment.

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Recruitment and a poor presentation (show) rate to screening appointments pose major challenges to enrolling men at high risk in PCA screening studies. While several previous studies indicate patient characteristics related to PSA testing for PCA or factors related to seeking PCA screening in men at high risk, none specifically describes the effectiveness of various recruitment methods for men at high risk for PCA screening. Spencer et al evaluated self-reported rates of PSA testing for PCA in men with a family history of PCA and AA men using the 2001 California Health Interview Survey.[7] While older age, higher socioeconomic status and a PCA family history were predictors of PSA testing, the study was not based on a prospective screening population of men at high risk, a more motivated group of men seeking screening. Melia et al evaluated recruitment of patients with PCA by mail and through clinics to obtain permission to contact first-degree relatives for PCA screening in England.[8] While marital status correlated with a higher PCA screening rate in first-degree relatives of patients with PCA, no other participant characteristics were analyzed with respect to recruitment method. Also, a diverse population of men at high risk was not recruited. Taylor et al performed a randomized trial of video vs print material vs a wait list control arm with respect to knowledge, decision conflict and self-reported PCA screening.[9] Self-reported screening rates increased with any intervention, highlighting the importance of communicating issues about PCA early detection. They did not specifically focus on effective recruitment methods into PCA screening studies, in which PCA education can occur. Pruthi et al studied the impact of PCA knowledge on screening behavior in siblings of men diagnosed with PCA.[10] Improved PCA knowledge predicted seeking subsequent PCA screening. Thus, recruitment methods must be evaluated for effectiveness in recruitment and show rates in PCA screening studies in men at high risk.

PRAP at FCCC is a prospective, longitudinal PCA early detection and education program for men at high risk. A 10-year analysis of cancer detection in PRAP showed that approximately 9% of white and AA men at high risk were diagnosed with PCA at a mean age of 55.9 and 57.4 years, respectively.[11] These findings support ongoing investigation of optimal PCA early detection strategies in men at high risk. However, significant efforts are involved in recruitment to PRAP with 50% to 60% of scheduled men failing to present to the first appointment. A previous analysis from PRAP showed that radio advertisements resulted in higher recruitment of AA men.[12] AA recruitment was guided by a framework called social marketing, in which relationships are built with customers (men at risk for PCA) to develop a value creating exchange process.[13] A method of social marketing that has been a focus of PRAP is DRR, a marketing method that seeks to elicit a consumer response by having listeners respond to a toll-free number. Such social marketing strategies have historically been successful in communities where AA men reside.[14,15] Thus, in the last 10 years of PRAP emphasis has been placed on using DRR to increase the recruitment of AA men into PRAP.

We report a comprehensive followup assessment of 10 years of recruitment efforts into PRAP that builds on the results of previous analysis. We expanded on the previous analysis by examining show rates to the initial screening appointment by recruitment method to tailor future recruitment approaches to these men.

MATERIALS AND METHODS

The objectives and design of PRAP were described previously.[16] Briefly, PRAP was established in 1996 to screen men at high risk for PCA and provide medical and psychosocial intervention. Eligibility criteria were male gender between ages 35 and 69 years, and 1 or more first-degree relatives with PCA, 2 or more second-degree relatives on the same side of the family with PCA, AA ethnicity regardless of PCA family history and/or a known mutation in *BRCA1* or *BRCA2*. PRAP was approved by the FCCC institutional review board.

Recruitment was defined as agreement to participate in the study and receipt of a scheduled visit date. The show rate was defined as participation in PRAP by attending the first visit.

Several recruitment methods have been used since 1996. Radio advertisements encouraging direct response (DRR) using a toll-free telephone number have been the primary recruitment method. Most advertisements aired in flighted segments 3 times yearly in the Greater Philadelphia area. The spots, which run on AM and FM radio stations with majority AA listenership, were previously described in detail.[12] At analysis PRAP was not advertised in the newspaper or on television but PRAP was previously promoted by news stories in newspapers or on television. PRAP has been publicized at various community events, health fairs and physician offices using a brochure designed by the FCCC marketing and communications department. Since 1999, a printed newsletter specifically about PRAP has been distributed quarterly to a similar audience. Referrals (physician, family, friends and acquaintances) have provided another major source of recruitment to PRAP. PRAP has been mentioned in FCCC generic newsletters (Internet or hard copy) at least annually. Finally, although no direct recruitment to PRAP is done using the Internet, PRAP is described on the FCCC website.

PRAP has also recruited participants from community partner hospitals. Currently 3 community hospitals actively recruit to PRAP. All recruitment materials at these sites are provided by PRAP and all intake materials are uniform throughout. This analysis focuses only on recruitment and show rates at FCCC due to variable missing