

## The Prostate Cancer Risk Assessment Program

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The Prostate Cancer Risk Assessment Program (PRAP) maintains a prostate cancer risk registry (PCRR) and screening clinic for prostate cancer high-risk families to strengthen our understanding of the hereditary-environmental processes of prostate carcinogenesis and provide education and informed decision making as well as medical and psychosocial interventions to high-risk men. Secondary objectives include studying the genetic predisposition to prostate cancer and developing tools for primary prevention and counseling. Healthy men aged 35 to 69 with a family history of prostate cancer and African-American men, regardless of family history of prostate cancer, are eligible for enrollment in PRAP. Men diagnosed with prostate cancer are eligible for the PCRR.



**Prostate cancer detection in a high-risk population.** Bruner, Konski, Feigenberg, Uzzo, Giri, Bower, Raysor, in collaboration with Hanks,<sup>a</sup> Mirchandani,<sup>b</sup> Greenberg,<sup>§</sup> Pollack<sup>§</sup>

*Black men with a family history of prostate cancer diagnosed at younger age than white men with similar family history.* African-American (AA) males and Caucasian males with a family history of prostate cancer (PCA) have been shown to be at increased risk of developing prostate cancer. We report the results of the first 520 males enrolled in the Prostate Cancer Risk Assessment Program, a high-risk prostate cancer screening program. AA men and Caucasian men with at least one first-degree or  $\geq 2$  second degree relatives diagnosed with PCA between the ages of 35 and 69 were eligible for enrollment into PRAP. Caucasian men testing positive for the BRCA1 gene were also eligible. Biopsy criteria included abnormal DRE, PSA  $>4$  ng/ml and free PSA  $<22\%$  and PSA  $\geq 2$  &  $<4$  and free PSA  $<27\%$ . Investigated variables between groups included: race, family history, income, education level, marital status, PSA and Gleason score in patients diagnosed with cancer. A chi-square test, t-test and ANOVA were used to test

significance between groups and investigated variables. A total of 520 men, 200 Caucasian, 315 AA men, and 5 men of other races were enrolled between 10/96 and 9/04. Income and education level differences were found between Caucasian men and both groups of AA men at the time of enrollment,  $p < 0.001$  but no difference between the two groups of AA men. Forty-one (7.8%) of men have been diagnosed with PCA; 16 Caucasian, 11 AA with no family history, and 10 AA with family history. The mean age of AA men with family history who were diagnosed with PCA was significantly younger, 50.2 years (range: 39–63), compared to Caucasian men diagnosed with PCA, 57 years (range: 43–69), and AA men without family history diagnosed with PCA, 59 years (range: 44–68),  $p < 0.001$ . There was no difference in the PSA prior to the biopsy (median: 3.6 ng/ml, 3.2 ng/ml, or 3.5 ng/ml respectively) or Gleason score (median 6 for all groups) of the PCA between groups. Among men at high risk for prostate cancer, AA ethnicity coupled with a family history of PCA leads to the development of clinically significant cancer at a younger age compared to Caucasian men

with a family history or AA men without a family history. Consideration for initiation of screening at an earlier age should be given in this highest of high-risk patients.

**Obesity does not improve prostate cancer detection in a high-risk population.** The purpose of this study was to determine whether obesity correlates with the development of prostate cancer in a high risk population. Between October 1996 and September 2004, 520 asymptomatic high-risk men in PRAP were screened with digital rectal exam (DRE) and total PSA. Percent free PSA was obtained in men with a total PSA between 2 and 10 ng/mL. Men with a normal DRE and total PSA between 2 and 4 ng/mL were advised to undergo a biopsy if the percent free PSA was less than 27%. Other indications for biopsy included an abnormal DRE or a total PSA >4 ng/mL. Obesity was measured by the body mass index (BMI) in kg/m<sup>2</sup>. The primary endpoint evaluated was prostate cancer detection. One hundred fifteen of the 520 men were referred for prostate biopsy, and 71 had a biopsy performed. Sixteen patients had multiple biopsies (6 had more than two biopsies). Forty-two patients had positive biopsies. The positive biopsy rate for a BMI <25, 25–30 and >30 were 12/33 (36%), 10/29 (34.5%) and 8/21 (38.1%), respectively. The BMI was unknown in 4 patients, of which 2 had positive biopsies. To determine whether BMI improved prostate cancer detection, patients with positive DRE or PSA >10 were excluded. The median BMI, PSA and free PSA for patients with a positive biopsy were 26.5, 3.5 and 12%, while the median BMI, PSA and free PSA for patients with a negative biopsy were 26.3, 2.9 and 17%. In this unique population of men at high risk for prostate cancer, it appears that obesity as measured by the BMI has minimal effect on prostate cancer detection.

**Community outreach and recruitment.** Bruner, Konski, Uzzo, in collaboration with Greenberg,<sup>§</sup> Pollack,<sup>§</sup> Goplerud,<sup>§</sup> Tofani,<sup>§</sup> Engstrom,<sup>§</sup> Buzaglo,<sup>§</sup> Miller,<sup>§</sup> Young,<sup>§</sup> Gordon<sup>c</sup>

*Successful strategies for African-American recruitment to prostate cancer research* (1). Clinical trials are imperative to improve prostate cancer (PC) outcomes in African Americans (AA) who have two times the incidence and mortality rates than whites. A variety of often resource intense hit-or-miss strategies have been used to over-

come barriers to ethnic minority recruitment in clinical trials. Unfortunately, many of these interventions have been sporadic and proved deficient. PRAP recruitment involves a multifaceted approach including a technique called “Relationship Marketing,” which employs a two-way exchange process and builds relationships that are sustained over long periods. A highlight of PRAP efforts is the success documented with direct response radio (DRR) marketing. DRR is a marketing term describing advertisements that seek to elicit direct consumer response generally by having listeners respond to a toll free telephone number. Our analyses show that DRR advertising accounts for 62% of all PRAP recruitment, accounting for 78% of AA but only 18% of white recruitment. While most cancer control trials accrue <5% AAs, PRAP has accrued 59% AAs, which is 45% greater than the 13.5% AA population in the FCCC primary catchments. Acknowledging the dissimilarities between strategies that motivate AAs and Caucasians in accessing health services can assist in designing effective recruitment strategies for each population.

*Community tailoring of prostate cancer outreach and recruitment: Beginning with focus groups.* Prostate cancer (PC) accounted for the largest number (10,858) and percentage (29.4%) of male cancers in PA in 2001. Age-adjusted incidence rates for PC among blacks was 257.1, 64% higher than among whites. However, documented barriers minority recruitment are frequently geographically and health-system specific. The purpose of this study was to assess community-identified barriers to PC screening, and PRAP participation to tailor community outreach and recruitment efforts. The Cognitive-Social Health Information Processing model (C-SHIP), helped frame discussions of two focus groups (one with black and one with white men) conducted with community residents within Temple University Hospital’s service area. This community is 93% black, 54% residents reporting incomes 200% below poverty level. Eligibility focus group participation included: age 35 to 69 years with no history of PC. Nine men participated in the white focus group and 10 in the black. Mean age for both groups was 50 years; 78% white and 70% black participants graduated high school. Participants were familiar with age recommendations to begin PC screening,

but unaware of guidelines for men at increased risk of PC. Both groups identified specific fears as barriers. AA men identified more barriers to screening including an overall distrust of the “system,” and that the “system” does not make an effort to educate AA men or present ethnically sensitive information. Of importance, participants in the Temple catchment area did not

identify access as a major barrier. Participants identified specific types of media and modes of communication they perceived would be most effective in informing and motivating PC screening. The C-SHIP framework provides a meaningful context to integrate findings and inform systematic efforts to enhance recruitment strategies.

## Publications

1. Watkins Bruner D., Linton, S., Konski, A., Uzzo, R., Greenberg, R., Pollack, A., Gordon, R., Cescon, T., Daly, M., Young, W., Goplerud, J., Tofani, S.H., Engstrom, P. Successful strategies for African-American recruitment to prostate cancer research. *Int. J. Cancer Prev.* 1(4):295-306, 2005.  
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