Can PSA Density Predict Your Risk of Having Prostate Cancer?

Introduction and Objective: Increasingly, patients with a raised PSA are subjected to prostate biopsies due to uncertainty about their individual risk of having prostate cancer. Biopsies of the prostate are generally safe, but can be associated with significant morbidity. We look at whether PSA density can be used to reliably predict the likelihood of having significant prostate cancer.
Materials and Methods: We looked retrospectively at all patients who underwent diagnostic template prostate biopsies from April 2007-November 2011. Demographic data, PSA, prostate volume, number of cores and histology results (divided into 1) benign 2) clinically insignificant 3) clinically significant) were collated. PSA density was then correlated with histological results.
Results: There were 514 patients with a mean age of 68.4 years. PSA density ranged from 0.01 to 1.31.

PSA Density	Benign	Insignificant Cancer	Significant Cancer
0.01–0.05	11(78.6%)	1(7.1%)	2(14.3%)
0.06–0.15	122(53.3%)	45(19.7%)	62(27.0%)
0.16–0.30	105(50.0%)	24(11.4%)	81(38.6%)
0.31–0.45	9(28.0%)	2(6.2%)	21(65.6%)
0.46–0.60	4(30.8%)	2(15.4%)	7(53.8%)
0.61–1.31	0(0.0%)	0(0.0%)	6(100.0%)

The incidence of clinically significant prostate cancer increases with PSA density. At lower PSA densities the likelihood of having benign or clinically insignificant disease is far greater than having significant prostate cancer, but still not negligible. Of note, no patients with 'clinically insignificant' cancer have required treatment to date.
Conclusion: An individual's PSA density can predict their likelihood of having clinically significant prostate cancer. This information should be used when counselling patients about the need for prostatic biopsy. This may avoid unnecessary biopsies and morbidity.