Trend of Prostate Biopsy for Prostate Cancer in Chinese Men from 2003 to 2011

Introduction and Objective: To understand trend of prostate biopsy for prostate cancer (PCa) in Chinese men during the last 10 years after increasing use of PSA tests.
Materials and Methods: All patients who underwent prostate biopsy for PCa at Huashan Hospital, Fudan University, Shanghai, China during 2003-2011 were evaluated. Prostate biopsy was performed using six cores before October 2007 or ten cores thereafter. Demographic and clinical information was collected for each patient, including age, digital rectal examination (DRE), transrectal ultrasound (prostate volume and nodule), total prostate-specific antigen (tPSA) levels and percentage of free PSA (%fPSA) prior to biopsy, and the pathological results. A trend test was used to evaluate the changes of positive prostate biopsy rate over the years. A logistic regression was used to model the predictors of PCa. Area under the receiver operating characteristic curve (AUC) was used to assess predictive performance of models.
Results: The overall positive rate of prostate biopsy for PCa was 47% and the rate decreased significantly over the years from 74% in 2003 to 33% in 2011 (P-trend=0.004). Similar results were found for high-grade PCa (Gleason Score ≥8, P trend=$2.08X10^{-7}$). Age at diagnosis was slightly increased (P-trend=0.04) while %fPSA was significantly decreased (P-trend=$1.11X10^{-5}$). No statistically significant trend of changes was found for tPSA levels (P-trend=0.470), prostate volume (P-trend=0.301), and proportion of positive nodule (P-trend=0.507). The predictive performance of positive prostate biopsy using DRE, tPSA, %fPSA, prostate volume, and nodule was excellent, with AUC of 0.93.
Conclusions: Detection rates of PCa and high-grade PCa among men underwent prostate biopsy in China decreased significantly in the last 10 years, likely due to increasing use of PSA tests. Predictive performance of demographic and clinical variables of PCa was excellent.

	2003	2004	2005	2006	2007	2008	2009	2010	2011	P-trend	Overall
No. of biopsies	58	85	268	294	180	186	196	175	208	/	1650
PCa (%)	74.	60	50	43	46	39	42	50	33	0.004	47
GS≥8 (%)	---*	50	61	51	46	42	32	40	27	2.08E-07	44
Age of Diagnosis (SD)	71.65 (7.42)	72.49 (8.25)	71.13 (7.69)	72.95 (7.84)	72.41 (9.2)	72.82 (8.86)	75.69 (7.93)	72.89 (8.64)	74.72 (8.24)	0.040	72.96 (8.30)
tPSA° (SD)	52.67 (3.44)	62.04 (3.07)	48.96 (2.42)	51.76 (2.33)	76.81 (5.22)	47.86 (3.95)	56.5 (4.24)	56.67 (4.13)	42.72 (4.23)	0.470	53.55 (3.54)
%fPSA (SD)	0.15 (0.17)	0.19 (0.21)	0.2 (0.16)	0.2 (0.16)	0.12 (0.08)	0.12 (0.08)	0.12 (0.07)	0.13 (0.07)	0.12 (0.09)	1.11E-05	0.15 (0.13)
Prostate Volume° (SD)	39.37 (1.57)	42.75 (1.62)	43.65 (1.66)	43.35 (1.64)	46.08 (1.63)	41.91 (1.53)	41.27 (1.6)	45.54 (1.64)	41.21 (1.61)	0.301	43.05 (1.62)
Nodule (%)	85.29	76.67	80.18	81.9	86.76	81.82	84.21	80.72	75.58	0.507	81.34

* No Data about Gleason Scores in 2003
° The values are antilogarithmic