Use of a BMI-independent biomarker-based prostate cancer risk score to identify and triage individuals at risk of prostate disease

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Prostate cancer (PCa) is the second most common cause of cancer related deaths in men in the UK. A national screening programme for PCa does not exist due to the unsuitability of the total prostate specific antigen (tPSA) test which is not specific for PCa and has a high false positive rate. Serum tPSA was measured in n = 25,356 male Randox Health clients. A biomarker-based (tPSA, EGF, MCP-1, IL-8) prostate cancer risk score (PCRS) was then applied to a retrospective cohort (n = 1,142/25,356) of individuals to assess PCa risk. A comparative analysis between tPSA and PCRS indicated that 90.5% of the cohort were assigned low risk of PCa. Of those with an elevated PCRS, 67.8% (78/115) had a normal tPSA value based on tPSA age-adjusted cut-offs. In addition, we observed a significant negative correlation between increasing body mass index (BMI) in men with high BMI (≥ 30) and tPSA levels. No correlation was observed between BMI and PCRS. The tPSA test is potentially unsuitable for use in males with BMI ≥ 30. Use of PCRS could provide more accurate PCa risk stratification for males with BMI ≥ 30. Future assessment of the clinical utility of PCRS is warranted.