

Performance of the ERSPC risk calculator for high grade prostate cancer in a clinical setting and the additional value of the Prostate Health Index (*phi*®)



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INTRODUCTION

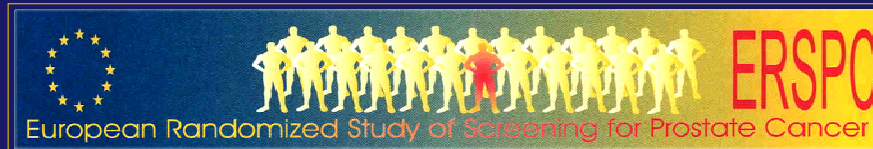
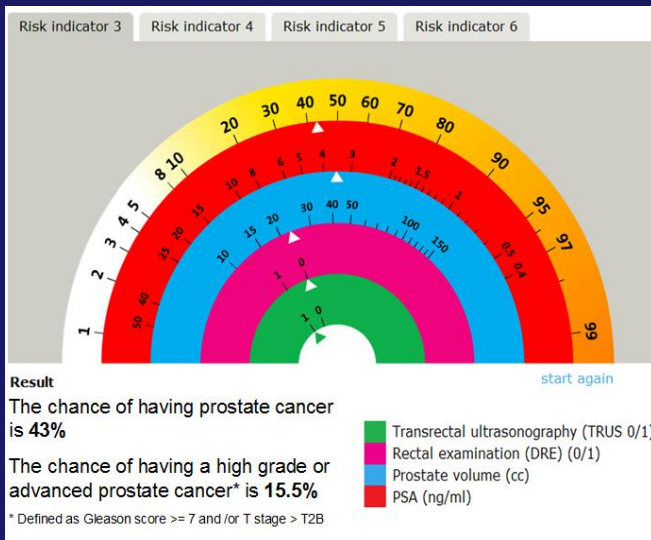
Risk stratification with the goal to identify men at increased risk of having a prostate cancer (PC) is often done with risk calculators (RC). Recently the ERSPC RC is extended with the possibility to calculate the risk of high grade (HG) PC (figure 1). Here we report of the performance of the ERSPC RC for HG PC in a clinical cohort (University Clinic Münster) and at the same time evaluate the additional value of *phi*® in this cohort. *phi*® combines total PSA, free PSA and[-2]proPSA test results.

MATERIALS AND METHODS

The clinical cohort consists of 205 biopsied men (PSA 2.0 - 10.0 ng/ml). A total of 100 PC cases (48.8%) were detected, 66 cases were High Grade PC (32.2%). Logistic regression analyses were used to assess the value in predicting High Grade PC of PSA alone, PSA plus DRE outcome, *Phi*® plus DRE outcome and the ERSPC HG Riskcalculator (with and without *phi*®). The calculated probabilities were compared with ROC analyses.

RESULTS

- AUC's of the different models are displayed in the table.
- PSA alone had lowest predictive capability (AUC = 0.61).
- DRE and *phi*® (AUC = 0.77) outperform the commonly used combination of PSA with DRE (AUC = 0.65).
- The ERSPC RC for High Grade PC (AUC = 0.77) in combination with *phi*® has the highest predictive capability (AUC = 0.80).
- The addition of *phi*® results in an increase in specificity from 40% to 58% (at 95% sensitivity).



No.	Model	AUC (95% CI)	P-value Comparing AUC of models.	Specificity (%) with 95% sensitivity
1	PSA	0.61 (0.54-0.68)		20
2	PSA+DRE	0.65 (0.58-0.72)	2 vs.1: 0.115	18
3	<i>phi</i> ®+DRE	0.77 (0.70-0.82)	3 vs.2: 0.007	41
4	ERSPC RC	0.77 (0.70-0.82)	4 vs.3: 0.986 4 vs.2: 0.001	40
5	ERSPC RC + <i>phi</i> ®	0.80 (0.73-0.85)	5 vs.4: 0.247 5 vs.3: 0.022	58

DISCUSSION & CONCLUSIONS

- *phi*® and DRE outperform the classical approach for risk assessment based on PSA and DRE outcome.
- There is additional value of *phi*® to the ERSPC Risk Calculator (not significant), however specificity increases considerably.
- The combination of *phi*® and DRE, results in equal performance with the ERSPC Risk Calculator for High Grade PC but circumvents the need of a TRUS and assessment of prostate volume.

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