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INTRODUCTION & OBJECTIVES: No contemporary nomogram to help predict biochemical recurrence (BR) after radical prostatectomy (RP) using a combination of competing risk assessment and conditional survival exist. Also, no nomogram is available as a mobile App, which would facilitate an easier integration into clinical routine. We computed and validated a contemporary nomogram from two large institutions, which predicts the absolute risk of BR every year after RP in men with undetectable PSA while accounting for competing risk of death during follow-up.

MATERIAL & METHODS: A consecutive cohort of 3,746 patients from Rigshospitalet, Copenhagen, Denmark, and Stanford Urology, CA, USA, that underwent RP from 1995-2013 were included. Time to BR defined by the first PSA ≥ 0.2 ng/ml. The risks of BR were computed using multiple cause-specific Cox regression including preoperative PSA, pT-category, RP Gleason score (GS) and surgical margin (R) status. Death without BR was considered a competing event. The nomogram present the future absolute risk of BR every year after RP for a man who is alive and without BR at the time of follow-up. Validation was assessed using discrimination and accuracy with time-dependent AUC and Brier scores.

RESULTS: Median follow-up was 5 years. A total of 766 (20.4%) men experienced BR after RP during follow-up in the two cohorts. The nomogram accuracy (c-index) was approximately 80% during follow-up. Brier scores were below 15% and identical for both cohorts suggesting a high discriminative ability of the nomogram. As an example, the risk of BR for a man with pT3a, R-, GS 3+4 and preoperative PSA ≤ 10 ng/ml followed for five years with undetectable PSA was 18% in the future five years. The CPC Risk Calculator is available as free App in Google Play and App Store. An example of the App is seen in the Figure.

CONCLUSIONS: This nomogram is the first validated nomogram available as a free mobile App. The nomogram was validated in two large institutional cohorts with long-term follow-up. The App can be used as a tool to inform men with undetectable PSA during follow-up after RP about their future risk of BR and can aid to individualize follow-up after RP.

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The CPC risk calculator app: A validated tool to predict recurrence after radical prostatectomy.

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●●●○○ TDC 4G 21.57 13 %

Input Values (i)

Years after surgery

0 1 2 3 4 **5** 6 7

Surgical Margin

- +

pT-category

pT2 **pT3a** pT3b

RP Gleason Score

6 **3+4** 4+3 8-10

Preop. PSA [ng/ml]

<=10 10-20 >20

Enter

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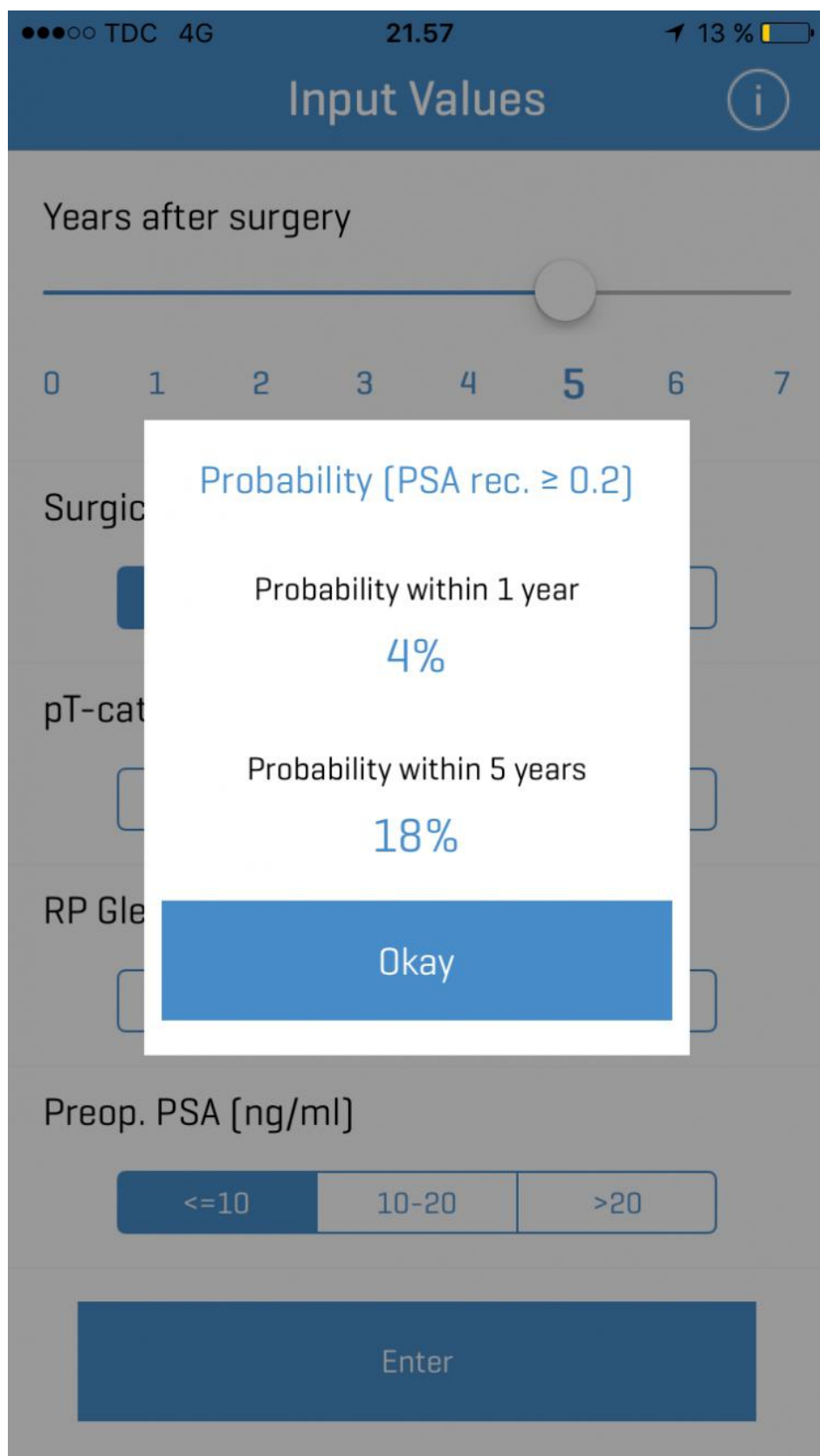
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The CPC risk calculator app: A validated tool to predict recurrence after radical prostatectomy.

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