New prognostic model for prostate cancer

A new prognostic model developed by use of baseline diagnostic information, has been shown to predict potential treatment benefits on overall survival in men with non-metastatic prostate cancer in a recent study.

To develop the model, David Thurtle (University of Cambridge, Cambridge, UK) and colleagues gathered data from 10 089 men in eastern England diagnosed with non-metastatic prostate cancer between 2000 and 2010 from the UK National Cancer Registration and Analysis Service. These data were randomly divided 70:30 into development (n=7062) and validation (n=3027) cohorts. For external validation, additional data were gathered from 2546 men in Singapore who were diagnosed with non-metastatic prostate cancer in a similar time period. Two separate multivariable Cox models were built to assess 15-year prostate cancer-specific mortality and non-prostate cancer mortality by use of patient and tumour characteristics routinely available at diagnosis (eg, age, prostate-specific antigen concentration, tumour stage, histological grade, primary treatment, and biopsy core involvement). These models were then adjusted for competing risks to predict overall mortality.

The PREDICT Prostate model accurately predicted overall survival outcomes, with concordance incidences of 0·84 (95% CI 0·82–0·86) and 0·84 (0·80–0·87) for 15-year prostate cancer-specific mortality in the UK and Singapore validation groups, respectively. The model maintained discrimination for overall mortality (concordance incidences of 0·77 [95% CI 0·75–0·78] and 0·76 [0·73–0·78]), and was well calibrated, with no significant difference between predicted and observed prostate cancer-specific deaths (p=0·19) or overall deaths (p=0·43) in the UK cohort over 10 years.

"PREDICT Prostate is about empowering patients to be at the centre of decision making by providing clear estimates on overall survival and relative treatment benefit to contextualise the impact of a new prostate cancer diagnosis", explained coauthor Vincent Gnanapragasam (University of Cambridge, Cambridge, UK). "It will also take out the huge variability in information and estimates patients may get from different clinicians or health-care providers." R Jeffrey Karnes (Mayo Clinic, Rochester, MN, USA) commented, "This individualised prognostic model for a newly diagnosed man with non-metastatic prostate cancer could be applied with certain caveats."

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For the **study by Thurtle and colleagues** see *PLoS Med* 2019; published online March 12. DOI:10.1371/journal.pmed.1002758