



Publication title:

[An external validation of models to predict the onset of chronic kidney disease using population-based electronic health records from Salford, UK](#)

Publication details (Vancouver format)

Fraccaro P, van der Veer S, Brown B, Prosperi M, O'Donoghue D, Collins GS, et al. An external validation of models to predict the onset of chronic kidney disease using population-based electronic health records from Salford, UK. BMC Med [Internet]. 2016;14(1):1–15.

What was known before your paper was published?

The number of patients diagnosed with chronic kidney disease (CKD) is increasing worldwide. Identifying people who may develop CKD would enable early preventative treatment that would reduce the impact of this disease. Several ways of identifying people at increased risk of developing CKD have been proposed in the scientific literature using risk models. However, to date only a few of them have been tested and directly compared. We were particularly interested in which one of these risk score models may be used in English primary care.

What did you do?

We selected CKD risk score models from the scientific literature that could be used in the English primary care system and tested their performance in identifying people at high risk of developing CKD within 5 years. We used linked, anonymised, structured primary and secondary healthcare data from patients resident in Salford, UK. We included in our study all patients who had any contact with their GP in 2009 and followed them until the end of 2014, death, or diagnosis of CKD. For each risk score model, we assessed whether the model could discriminate people who did develop CKD compared to those people who did not, and whether the model was well calibrated for the English population.

What did you find?

We found seven CKD risk score models that could be used in English primary care. All the models were able to discriminate between people who developed CKD and those people who did not. However, most of the models were a poor match to our English study population, with the models identifying people as high risk although they did not develop CKD within our study period. Only two models were calibrated to accurately identify people at high risk in our study population.

What insights/knowledge did you add?

The CKD risk score models we evaluated showed good discriminative ability but were poor at identifying people at high risk of developing CKD who were English primary care patients. QKidney, the only UK-developed model, outperformed the others, and could be conceivably used in the English primary care to identify people who are at high risk and therefore receive early preventative treatment before CKD develops.