

## HRB Centre for Primary Care Research Research Briefs

### *Development of a Clinical Prediction Rule (CPR) register for primary care*



Clinical prediction rules (CPRs) are increasingly used in primary care. These are clinical tools that take account of a patient's history, clinical examination and diagnostic tests to stratify patients according to their probability of having a specific target disorder. Outcomes of CPRs can be presented as diagnosis, prognosis, referral or treatment. CPRs can be used by clinicians to assist the overall diagnostic and prognostic process.

Before widespread clinical implementation CPRs should pass through three stages of development: (i) Derivation: factors with predictive power are identified to develop the rule; (ii) Validation: The rule is tested in a new population for reliability and accuracy; (iii) Impact analysis; the impact of the use of the rule can be tested in terms of patient outcomes, physician behaviour or costs.

Researchers at the Health Research Board (HRB) Centre for Primary Care Research

([www.hrbcentreprimarycare.ie](http://www.hrbcentreprimarycare.ie)) have developed a register of CPRs for use in primary care published this week in the Annals of Family Medicine.(1)

#### **We can be found at:**

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HRB CENTRE FOR  
PRIMARY CARE RESEARCH



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In this study led by Dr Claire Keogh, a novel search string was developed in-house in order to identify CPRs from 30 pre-selected medical journals.(2) These journals were chosen based on their relevance to primary care and impact factor. Secondary sources and personal resources were also used to retrieve relevant CPRs from 1980-2009. Relevant articles were classified according to their clinical domain, stage of development of the CPR and clinical setting.

A total of 745 articles were eligible for inclusion on the register. There were 434 unique CPRs that had gone through derivation. Of these 238 (54.8%) had been validated at least once and 12 (2.8%) had undergone impact analysis that assesses CPR impact on either the process or outcome of clinical care. CPRs were most commonly published for cardiovascular disease, respiratory disease and musculoskeletal conditions. The majority of articles were published in primary care or emergency department settings. Professor Tom Fahey, Principal Investigator of the HRB Centre said, 'This register will assist with the knowledge transfer of evidence based medicine in clinical practice, at the point of patient care'.

A related study, carried out in conjunction with European collaborators, focussed on reviewing CPR recommendations in clinical guidelines and a supplemental survey of GPs in the United Kingdom (UK).(3) The aim was to explore CPR usefulness in the opinion of experts and use at the point of care in selected clinical areas. Commenting on this study lead author Dr Emma Wallace said 'Of 7,637 records screened, 243 clinical guidelines met inclusion criteria. CPRs were most commonly recommended in guidelines regarding primary prevention of cardiovascular disease (67%) and depression (67%). There was little consensus across various clinical guidelines as to which CPR to use preferentially. Of 401 respondents to the GP survey in the UK, most were aware of and applied named CPRs in the clinical areas of cardiovascular disease and depression. The commonest reasons for using CPRs were to guide management and conform to local policy requirements.

#### The articles can be viewed at:

[1] Keogh C, Wallace E, O'Brien KK, Galvin R, Smith SM, Lewis C, Cummins A et al. Developing an international register of clinical prediction rules (CPRs) for use in primary care settings: descriptive analysis. *Ann Fam Med*. 2014 Jul;12(4):359-66. ([www.ncbi.nlm.nih.gov/pubmed/25024245](http://www.ncbi.nlm.nih.gov/pubmed/25024245))

[2] Keogh C, Wallace E, O'Brien KK, Murphy PJ, Teljeur C, McGrath B, et al. Optimized retrieval of primary care clinical prediction rules from MEDLINE to establish a Web-based register. *J Clin Epidemiol*. 2011 Aug;64(8):848-60. ([www.ncbi.nlm.nih.gov/pubmed/21411285](http://www.ncbi.nlm.nih.gov/pubmed/21411285))

[3] Pluddeman A\*, Wallace E\*, Bankhead C, Keogh C, Van der Windt D et al. Clinical prediction rules in practice: review of clinical guidelines recommendations and survey of general practitioners. *Br J Gen Pract*. 2014 April;64:e233-e242. ([www.ncbi.nlm.nih.gov/pubmed/24686888](http://www.ncbi.nlm.nih.gov/pubmed/24686888))

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