HRB Centre for Primary Care Research
Research Briefs

Clinical Prediction Rules

The utility of clinical prediction rules in respiratory illnesses

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Clinical prediction rules (CPRs) are designed to assist clinicians in stratifying patients according to their probability of having a specific target disorder based on the patient's history and clinical examination. The Health Research Board (HRB) Centre for Primary Care Research (www.hrbcentreprimarycare.ie) has recently published two systematic reviews that examine the predictive value of CPRs in respiratory illnesses.

In collaboration with the Radboud University Nijmegen in The Netherlands, the HRB Centre for Primary Care Research supports research placements for visiting Erasmus undergraduate medical students. Under the supervision of Professor Tom Fahey and his research team, the Erasmus student Jolien Aalbers led a systematic review of the Centor score, published in *BMC Medicine* [1].

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The Centor score is based on four clinical variables (tonsillar exudates, tender anterior cervical adenopathy, absence of cough and history of fever). Based on their total number of signs and symptoms, a patient is stratified into low, moderate or high risk of having streptococcal sore throat. The systematic review of 15 validation studies suggests that the Centor score is useful in predicting the condition. In terms of informing treatment choice, Dr Kirsty O'Brien commented that if the score is applied in clinical practice, it can enhance appropriate prescribing of antibiotics.

The HRB Centre also offers elective research placements to RCSI's and other universities' undergraduate medical students. Maggie McNally and James Curtain used their summer elective to complete a systematic review of the CRB-65 rule, developed to predict the severity of pneumonia in primary care. It comprises four variables including confusion, increased respiratory rate, hypertension and age. The rule appears to over-predict the probability of mortality at 30 days. However, only four studies have investigated the rule in a primary care setting. The authors conclude that further validation studies need to be completed prior to the implementation of the rule in mainstream general practice. This work was published in the *British Journal of General Practice* [2].

These reviews will contribute to the ongoing work at the HRB Centre for Primary Care Research in the development of an international register of clinical prediction rules relevant to primary care. This web-based register will be made publicly available in 2012 through the Cochrane Primary Health Care Field (www.cochraneprimarycare.org).

Professor Tom Fahey, Principal Investigator at the HRB Centre highlights the value of undergraduate students engaging in research in a supportive environment. Professor Fahey said "These two publications demonstrate that with some guidance, undergraduate medical students can make a positive contribution to evidence-based medicine. In addition to developing research skills, these placements nurture life-long learning by encouraging critical appraisal of medical literature".

The articles can be viewed at:

[1] Aalbers J, O'Brien KK, Chan WS, Falk GA, Teljeur C, Dimitrov BD, Fahey T. Predicting streptococcal pharyngitis in adults in primary care: a systematic review of the diagnostic accuracy of symptoms and signs and validation of the Centor score. *BMC Medicine* 2011, 9:67. (www.ncbi.nlm.nih.gov/pubmed/21631919)

[2] McNally M, Curtain J, O'Brien KK, Dimitrov BD, Fahey T. Validity of the British Thoracic Society guidance (the CRB-65 rule) for predicting the severity of pneumonia in general practice: systematic review and meta-analysis. *British Journal of General Practice* 2010; 60(579): e423-433. (www.ncbi.nlm.nih.gov/pubmed/20883616)