Reviewer's report

Title: Development and validation of a clinical prediction rule for chest wall syndrome in primary care

Version: 1 Date: 15 April 2012

Reviewer: Michael MY Yelland

Reviewer's report:

Major Compulsory Revisions

No major compulsory revisions required.

Minor Essential Revisions

The author can be trusted to make these. For example, missing labels on figures, the wrong use of a term, spelling mistakes.

(Please note that in my line referencing system, only lines with text are numbered. I have ignored blank lines when counting)

Page 2

Line 9: Replace 'achieved' with 'determined'

Lines 14-15: Please clarify the section 'six variables characterising CWS chest pain thoracic pain (neither retrosternal nor oppressive)'. Do you mean: 'six variables characterising CWS: chest pain/thoracic pain (neither retrosternal nor oppressive)'? In table 5 this is listed as 'Pain not retrosternal neither oppressive', which I think should be 'Pain neither retrosternal nor oppressive'

Line 21: Clarify this subset of patients better. Was it ALL those who had any additional investigations or referrals to diagnose the cause of their chest pain or was it a randomly selected subset?

Line 22: Replace 'exams' with 'investigations or referrals'.

Page 3

Line 1: Replace 'prescribed' with 'performed'.

Lines 9-10: The statement about reproduction of chest pain by palpation suddenly appears in the conclusions without mention earlier in the results. At the very least you need to mention its frequency in the CWS population.

Page 4

The background section needs further material on the potential of such a rule to save medical resources and costs and also on the benefits to patients of the reassurance provided by a positive diagnosis as opposed to the exclusion of more serious causes of chest pain to support the rationale for the CPR. The following references cover a past debate about this issue:


The four point algorithm derived from the Bosner et al (2010) study is crucial for comparison with the findings of this study and so warrants quotation in full, ie ‘localized muscle tension, stinging pain, pain reproducible by palpation and absence of cough’.

Page 5

Lines 5-6: Please make it more clear that the ‘German study’ was an independent study set up to research CWS that post-hoc collaborated with the Swiss study to allow a validation of the CPR if I am correct in this assumption.

Discretionary Revisions

Page 5

In the design overview section, you should announce/define the terms ‘derivation cohort’ and ‘validation cohort’ before their use later in the page.

Pages 5 & 6

If patients in the derivation cohort had a pain duration of 3-9 weeks and those in the validation cohort were excluded with chest pain >1 month or a past history of chest pain, there should be mention in the design overview that this is a study of acute chest pain.

Page 7

Lines 14-15: Please make more clear whose diagnosis was used as the final diagnosis. Was it the diagnosis of the GP when there was a clear diagnosis and of the research team when the diagnosis was unclear? This is made more clear on page 8, but should be made clear on page 7 where it is first mentioned. Please also make clear if the GP’s diagnosis was classified by the research team as ‘chest wall syndrome’ if it matched anything under this umbrella term as it is defined in the ICPC (on page 6).

Page 8

Line 9: Were discharge letters requested by the GPs or from the GPs?

Line 19: Please elaborate on why the independent expert reviewed the records, how they did this and, later on, what the outcome of this review was.

Page 10

Line 3: You may wish to add that other researchers have used this cutoff for specificity – see


Line 15: ‘non-formal’ should be ‘no formal’
Page 11
Line 2: For readers unfamiliar with bivariate analyses, you may wish to make it clear that they compare those diagnosed with CWS with the remainder of the cohort.

Line 12: Please explain why the variable ‘pain reproducible with palpation’ was granted 2 points in the CPR – presumably because it had the highest OR.

Line 17: Please explain why these 43 were chosen. Were they the only patients in whom additional investigations or referrals were performed to reach the diagnosis?

Page 12
Line 19: To explain why reproduction of pain by palpation is not pathognomonic it would be helpful to give its prevalence in the whole cohort and also it sensitivity and specificity.

Line 21-22: Add a justification here or earlier in the paper as to why the university clinical without GPs is representative of general practice. How many of the patients were obtained from this clinic?

Page 13
Line 14: Suggest the addition of ‘if it had been , then…’ after the semicolon and before ‘other diagnostic…’.

Page 14
Line 4: suggest ‘classification’ rather than ‘designations’ and to put classification before determinants in this sentence.

Page 15
Line 13: GP = general practitioner

Please note that both the comments entered here and answers to the questions below constitute the report, bearing your name, that will be forwarded to the authors and published on the site if the article is accepted.

1. Is the question posed by the authors well defined?

Yes, although it is expressed as an aim to develop a clinical prediction rule for chest wall syndrome. The argument for developing this rule could be made more compelling by further material in the background section on the potential of such a rule to save medical resources and costs and also the benefits to patients of the reassurance provided by a positive diagnosis as opposed to the exclusion of more serious causes of chest pain.

2. Are the methods appropriate and well described?

The methods are certainly appropriate for a condition for which a definitive diagnosis is problematic and a clinical diagnosis that is strengthened or refuted with the passage of time. There is room for more clarity in the description of the methods which are outlined in the section on minor essential revisions.

3. Are the data sound?
The authors describe a list of variables that have face validity in the diagnosis of chest wall syndrome. The data collecting process described is both comprehensive and has a high follow-up rate over time. This is reassuring.

4. Does the manuscript adhere to the relevant standards for reporting and data deposition?
   The methods describe procedures for protection against bias for the derivation and validation cohorts, including the classification of patients without a clear diagnosis from the GP, independent expert review of medical records, random audits of documentation and use of a reference panel, but does not give any results of these protective measures to reassure the reader about the quality of the data obtained.

5. Are the discussion and conclusions well balanced and adequately supported by the data?
   Yes, but some minor improvements are made in the revisions section of this review.

6. Are limitations of the work clearly stated?
   Yes, but further information about the quality of data collection would be helpful here.

7. Do the authors clearly acknowledge any work upon which they are building, both published and unpublished?
   Yes, but a description of all four variables in the clinical score for chest wall syndrome derived by Bosner et al from the validation cohort, should be included for comparison. These were ‘localized muscle tension, stinging pain, pain reproducible by palpation and absence of cough’.

8. Do the title and abstract accurately convey what has been found?
   The title accurately describes the work. There could be some minor improvements to the abstract to include clarity. These are outlined in the section on minor essential revisions.

9. Is the writing acceptable?
   Generally yes, but some minor improvements are outlined in the section on discretionary revisions.

**Level of interest:** An article of importance in its field

**Quality of written English:** Needs some language corrections before being published

**Statistical review:** No, the manuscript does not need to be seen by a statistician.
Declaration of competing interests:

I declare that I have no competing interests.