Reviewer's report

Title: The “Black Box” of Primary Care: What's behind the Code?

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Reviewer: Jean-Karl Soler

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Title: The “Black Box” of Primary Care: what’s behind the code?

Decision: major re-write necessary.

The article is an interesting one, which makes a good point about studying the actual content of practice, rather than relying on data from coding for billing purposes.

Major compulsory revisions:

However, the conclusions about the “deficiency of singular ICD-9 coding which fail to capture the comprehensiveness and complexity of the primary care encounter” are simplistic. Reduction in complexity is an expected consequence of coding data, even in qualitative research. What is the practical alternative? Is all quantitative research in primary care based on coding systems an inappropriate reduction? What is the appropriate reducing system to use, and how does this help us understand the content of the “black box?”

The methodology is appropriate, but no coding system for reasons for encounter was used. How were the patient’s symptoms coded? The coding presented for patient’s reasons for encounter in table 1 (primary reason for visit) are even more of a reduction in complexity than ICD-9. Why was not a more appropriate coding system for reasons for encounter used (RFV from the USA, ICPC fro Wonca)?

Results. It is surprising (page 7) that the most commonly “discussed” topics were periodic health examinations, depression, hypertension, anxiety, diabetes, etc. These are skewed to chronic disease management and prevention. Is this the “black box” of primary care in Canada? Do Canadian GPs primarily care for chronic disease and prevention? Where is cold and flu, bronchitis, gastroenteritis, childhood illnesses, back pain? It is my impression that by not coding using episodes of care and using an encounter based model (5 encounters for one problem are counted five times, and not once as one problem), the authors have exploded the prevalence of chronic disease. We have published extensively about this before (see: Soler JK, Okkes I, Lamberts H, Wood M. The coming of age of ICPC: celebrating the 21st birthday of the International Classification of Primary Care. Family Practice, 2008; 25: 312-317)

Complexity of the encounter (page 7). How do you code complexity? How was
this measure validated?

Discussion.

Page 8, first paragraph. A mean of 2.56 topics were discussed per visit. Coding more than one “topic” during a visit is an EMR issue, and not a coding system issue. In fact most coding systems encourage doctors to code in as much detail, and as many presenting problems, as possible. Actual coding system limitations and EMR limitations should be discussed separately. If the EMR system only allows you to code one topic per visit (I do not know if this is the case), or if doctors are “lazy” in coding all sub-encounters (problems managed in one encounter) this is not an ICD limitation.

Page 8, second paragraph. You conclude that primary care visits are more complex than originally thought. This is not proved by your study, and needs more evidence.

Page 9, first lines. “The ICD-9 code did not consistently correspond to the problems considered dominant…” You relate this to the complexity of the visit. Please see above on the effect of the EMR coding system, and doctor reluctance to code more than one problem during an encounter (sub-encounters). Additionally, you do not consider the effect of coding for billing adequately in this part, and other parts of the discussion. This effect is very strong and should be further considered.

Page 10, first paragraph. You make conclusions about appropriate and less appropriate coding systems without reviewing them (ICPC for example), and without addressing the published literature.

You conclude that more “precise and comprehensive means” are needed. We have published a detailed review of coding with ICPC in primary care, and come to the conclusion that increased granularity (finer detail in coding system) is a significant threat to precision (wider confidence intervals of observations). Episode typing against encounter-based data is another major point which has not been discussed in your paper.

Furthermore, what do you really mean by more comprehensiveness in a coding system? Do you mean using Snomed or Read, for example? In such cases, the impact of increased ambiguity of terms has a huge impact on the accuracy of the concept being coded. “Cold” may be considered a more comprehensive code than “upper respiratory tract infection”, since it also includes the lay concept of the condition and the systemic effects of the virus, but the concept has overlap with such concepts as “cold agglutinins”, “cold injury”, “feeling cold”, etc. The consequences of using a coding system which is not a classification (therefore concepts are not uniquely coded, as in Snomed) are not considered. The statements as presented are not adequately defended, and they should be discussed in the context of existing literature.

Tables. Vide Table 2. “General Medical Examination” is not a diagnosis, but a process of care. Are these encounters really for preventive medicine?
The English of this article is acceptable.

**Level of interest:** An article whose findings are important to those with closely related research interests

**Quality of written English:** Acceptable

**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'