Reviewer's report

Title: Measuring data reliability for preventive services in Electronic Medical Records

Version: 1 Date: 7 November 2011

Reviewer: R.A. Verheij

Reviewer's report:

The paper is interesting and well written, and entails an original way of looking at the issue of reliability of EMR data.

It addresses an important issue, relating to the use of electronic medical records for research purposes. The authors try to answer the question whether such data are reliable by comparing changes in the amount of preventive services provided using administrative data on the one hand and electronic medical records and paper medical records on the other hand. The hypothesis seems to be that the rate between administrative data and medical records is not different for electronic and paper records.

Major compulsory revisions:

- Although a considerable number of patients are involved, the study pertains to only 18 practices. It is an ecological study relating to only this number of practices. It would have been better to link EMRs to the administrative database on a patient by patient basis. In theory, the vaccination rate (for example) in the EMR data, could relate to a totally different set of individuals, as in the administrative database, even though vaccination rates are the same. At least this should be mentioned as a limitation of the study.

- The outcomes have been corrected for differences in practice composition using logistic regression. Why was this necessary? The preventive services that are studied all relate to a specific group within each practice, which implies that correction is not necessary, as the denominator is always comparable across years/practices.

- I do not understand how the authors come to the conclusion that EMR data for preventive services can not be used to measure and improve quality [of care]. In my view the conclusion should be that the overall difference between medical records and administrative data has decreased with the introduction of electronic medical records (table 4). The fact that the rate between administrative data and electronic medical records was not constant is based is in my view likely to be due to the fact that the study took place shortly after the introduction of EMRs. In my view the conclusion must be that in the first year after the introduction of EMRs these EMRs should better not be used for measuring service provision. Furthermore, reliability seems to vary strongly between the services that are studied.
Minor Essential Revisions
- A hypothesis is lacking: what do the authors expect to find. Which outcomes would ‘prove’ that EMR data are reliable?

Discretionary Revisions
- The authors sometimes confuse two things: the service having been provided and a service having been recorded and recording of the service (eg. P. 5: the study end point ……; p. 9: we found a lack of improvement in preventive service provision……
- I do not understand the way paper charts have been examined. If you examine 40 charts per service, you only have a numerator and no denominator.
- Tables should include N.
- p. 8 (top) Table 4 must be Table 5.

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.