Reviewer's report

Title: Regional variation in avoidable hospitalizations in Switzerland and its relationship to health care supply and rurality; Small area analyses

Version: 1 Date: 15 August 2013

Reviewer: Klazien Matter-Walstra

Reviewer's report:

This is an interesting study on avoidable hospitalizations in Switzerland. In general a clear link to international comparison is missing. Further comments see below.

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

2. Are the methods appropriate and well described?
   The methods have some limitations, which however cannot be overcome because of lack of data

3. Are the data sound?
   yes

4. Does the manuscript adhere to the relevant standards for reporting and data deposition?
   No information on patient selection procedure (including numbers) is given. It is also unclear whether the date are patient or case (one patient might have several hospitalization episodes within the given period) based.

5. Are the discussion and conclusions well balanced and adequately supported by the data?
   Yes

6. Are limitations of the work clearly stated?
   Can be improved (see below)

7. Do the authors clearly acknowledge any work upon which they are building, both published and unpublished?
   Some is missing (see below)

8. Do the title and abstract accurately convey what has been found?
   Title does not convey what has been found

9. Is the writing acceptable?
Please number your comments and divide them into

Major Compulsory Revisions

In Design of the Study

1. Page 4: These indicators, including hospitalizations with a principal diagnoses of asthma, chronic obstructive pulmonary disease (COPD), diabetes complications, congestive heart failure (CHF), and hypertension[10], are used to define AH for this Study.

1. Please provide a better explanation why these indicators define AH.
   o Are all hospitalizations (based on ICD10 and DRGs information) for such indications looked upon as AH?
   o If a so called AH leads to an in-hospital death, is it still to be called an AH?
   o Can database information on hospitalization really discriminate between AH and necessary hospitalizations?

In Results

2. Please provide a patients selection flow chart with numbers for in- and exclusion of patients

In Discussion

3. Page 10: Our study highlights up to 12-fold regional differences of AH over a period of three years that are unlikely to be explained by regional variation in the incidence of the underlying disease categories.

   o Can the statement that “are unlikely to be explained by regional variation in the incidence of the underlying disease categories” be documented by the literature? Especially in Switzerland with very different geographic areas one might expect differences in disease incidences like higher incidences for asthma in dense populated industrial areas and low incidences in mountain areas?

Minor Essential Revisions

In Background:

4. Page 3: AH are indicators of access and quality of ambulatory care and have been used to monitor health system performance in several countries, including the United States, Canada, Brazil, several European countries, New Zealand and Australia.

   o Please provide references for this statement

5. Page 12: Our findings suggest that primary care physicians and specialists have different priorities when they refer patients to hospitals.

   o As over 70% of the admissions are emergency admission, how many of these are admissions without the reference of the primary care or specialist physicians? Is there information on this? Please discuss.
6. Page 14: The concept of AH does not take into account the potential benefits for patients of a theoretically avoidable hospital stay. But as long as valid data regarding the outcome of hospitalizations on patient health remain unavailable, AH is currently the best approach for estimating the appropriateness of care.

If AH is only defined by a diagnostic (ICD10 /DRG) code, without knowledge on the underlying reason for hospitalization and provided treatment (which might only be given in a hospital), the suitability of estimating appropriateness of care might/should be highly questioned?

Discretionary Revisions

None

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

**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’