Reviewer's report

**Title:** The efficacy of computer reminders on external quality assessment for point-of-care testing in Danish general practice: Rationale and methodology for two randomised trials

**Version:** 3  **Date:** 6 June 2011

**Reviewer:** Ian Steen

**Reviewer's report:**

I agree with the authors that we can regard these as two randomised controlled trials (rather than cluster randomised controlled trials). In general variables are measured at the level of the practice. (although there are one or two variables measured at the level of the GP). The overall study design is adequately described.

I have two major concerns to be addressed:

1. description of outcomes
2. proposed method of analysis of a dependent variable that takes the form of a count.

In more detail:

1. The main issue for me was determining the nature of the primary outcome variable. We have the following statements:

   “Outcomes are measured by the number of split tests received by the laboratory” (p2)

   “The guidelines recommend a split test procedure each month for each POCT instrument.” (p6)

   “The split test procedure is illustrated in figure 1.” (p6)

   Figure 1 as submitted shows the flow of practices through the study rather than the split test procedure. I am uncertain as to the relationship between a “split test” and an “external quality assessment”. Are they the same thing?

   “Combined, this monitoring gives a series of up to four measures (defined by several outcomes, see below) of EQA adherence” (p7)

   For study A the primary outcome is defined as “Total number of EQA for INR performed by the practice” (p9). The binary secondary outcomes are defined. Corresponding outcomes are defined for study B (p11)

   I would have found the paper much easier to read if all this information had been drawn together preferably before the description of the statistical analysis. In addition how many EQAs do we expect in each practice each month?

2 Statistical analysis
“In order to investigate the development of EQA adherence over the up to four periods relative to the (changing intervention), logistic (binary outcomes) and linear (continuous outcomes) regression is used with GEE methods to account for the repeated measurements.” (p8)

With respect to the secondary outcomes I am happy with this suggested analysis – logistic regression with GEE.

With respect to the main outcome I do have some concerns. The number of EQAs performed is a count variable. For many reasons I would prefer to see the use of negative binomial regression rather than linear regression. I don’t know many EQAs are expected in each period for each practice but if this is related to list size or number of lab tests ordered I would expect this to be taken into account by way of an exposure variable. (In stata I would use xtnbreg which allows for the fitting of population averaged (GEE) models to count data. I don’t know the name of the corresponding SAS procedure.)

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

**Quality of written English:** Acceptable

**Statistical review:** Yes, and I have assessed the statistics in my report.

**Declaration of competing interests:**

No competing interests