Reviewer's report

Title: Pattern recognition in menstrual bleeding diaries by statistical cluster analysis

Version: 1 Date: 25 April 2009

Reviewer: Eileen Manalo

Reviewer's report:

Answers to Guide Questions:

1. Is the question posed by the authors well-defined?
   Basically, the paper is asking the question “What are the bleeding patterns among women who used sex hormone-containing drugs, kept bleeding diaries, and were involved in clinical studies involving the use of such sex hormone-containing drugs “
   The phrasing of the aim of the paper, however was not clear. (major compulsory revision)

2. Are the methods appropriate and well-described?
   The population studied was not clearly defined. What were the demographic characteristics of the women studied (e.g., age, body weight, BMI, purpose of sex hormone drug use, duration of treatment) (major compulsory revision)
   “Bleeding intensity” categories were standardized according to WHO terminology as “none”, “spotting”, and “bleeding”. Although the authors defined “spotting” and “bleeding”, “none” was not defined. Does “none” mean total amenorrhea, or merely the absence of intermenstrual bleeding? (major compulsory revision)
   I also could not understand the statement “The bleeding patterns in the diaries should be found by unsupervised pattern recognition”. (minor essential revision)
   The clinical trials involving use of sex hormone-containing drugs were not cited. (major compulsory revision)

3. Are the data sound?
   The Ward Method tends to join clusters with a small number of observations and is strongly biased toward producing clusters with roughly the same number of observations (Milligan, 1980) (major compulsory revision)
   There is a need for a more detailed description of the bleeding patterns identified. In this aspect, the paper fell short of achieving its objective. (major compulsory revision)
   Legends used are likewise rather confusing. (minor essential revision)

4. Are the limitations of the work clearly stated?
   Limitations of the study are not clearly stated (major compulsory revision)
5. Is the writing acceptable?
Grammar and sentence construction have to be improved. (minor essential revision)

NOTE: I emailed a copy of the whole journal with my suggested corrections (especially on grammar/sentence construction using email address editorial@biomedcentral.com

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

Quality of written English: Not suitable for publication unless extensively edited

Statistical review: Yes, but I do not feel adequately qualified to assess the statistics.

Declaration of competing interests:
I have received honoraria for lectures given in behalf of Bayer Schering, and funding for travels for scientific congresses