Reviewer’s report

Title: Filtering Data from the Collaborative Initial Glaucoma Treatment Study for Improved Identification of Glaucoma Progression

Version: 2 Date: 13 September 2013

Reviewer: Paul Albert

Reviewer’s report:

This manuscript discusses the use of time-series approaches in order to improve the prediction of Glaucoma progression from longitudinal biomarkers over using the raw biomarker measurements. The work is interesting and has potentially many useful applications. However, I do have some concerns and recommendations that would improve the paper:

1. A presentation of the actual longitudinal data (or summaries) would be helpful. Showing summary measurements or a few longitudinal profiles would provide some visual demonstration of what is gained by the filtering. The authors should consider plotting the biomarker measurements and progression data on the same plot for a few individuals.

2. Were the Gaussian assumptions for VP and IP test measurements reasonable. Did the state-space data fit the actual data well?

3. Was there any missing data for either the biomarkers or the progression assessments? Did any individuals die or dropout over the 10 year follow-up period? If so, how was this handled?

4. More information about the GEE would be useful. Was only a working independence model used?

4. Although the filtered model provided a higher AUC than the raw measurements, it would be interesting to estimate the variance of the estimated AUC under both approaches.

Level of interest: An article of importance in its field

Quality of written English: Acceptable

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

Declaration of competing interests:

I declare that I have no competing interests