Reviewer's report

Title: Persistence on prostaglandin ocular hypotensive therapy: an assessment using medication possession and days covered on therapy

Version: 1 Date: 19 August 2009

Reviewer: Alan Robin

Reviewer's report:

This interesting manuscript deals with persistency with prostaglandin analoges using both medication possession and days covered on therapy.

Persistency is an important issue, especially in asymptomatic diseases such as glaucoma. The authors are well respected for many previous excellent papers. I would like to make some suggestions and comments that might help with the manuscript.

General Comments
• The authors primarily use their own references. Perhaps it would be best to also include those of others who have used pharmacy refill data? Different authors have had differing conclusions to the authors'. In all fairness, inclusion of the work of others and a fair discussion would be appropriate.
• Why did the authors use 368 days for follow up?
• The authors use the term "days covered" throughout the manuscript. This is based on the Wilensky paper only and does not take into account recent manuscripts. With the recent work of Koldebarin et al. [Multicenter study of compliance and drop administration in glaucoma. Can J Ophthalmol 2008;43:454-461] can the same algorithms used in the past actually be used? With almost two drops needed per instillation, how did the authors calculate "days covered"? The experience in drop instillation may actually still be worse in the authors' study as this most likely was the first perscription for an IOP lowering medication and perhaps even the first time eye drop administration. This I do disagree that "days covered' corresponds to the outcome "adhrence". The authors should recalculate their data based on these more recent publications.
• There are advantages and disadvantages to various techniques of assessing adherence. Pharmacy data is perhaps just a little better than patient questionnaires and far worse than electronically documented adherence and persistency. These facts should be noted within the introduction or discussion.

Specific Comments
• Page 3, lines 1-3: This is written in an awkward style and perhaps could be rewritten?
• Page 3, line 8: "Index agent…=fill date." Is not a sentence?
• Page 5, first paragraph: This sentence makes it sound like glaucoma is the only
problem in which there is a problem with persistency. A good reference manuscript that might be cited is Vrijens et al. Adherence to Prescribed Antihypertensive Drug Treatments: Longitudinal Study of Electronically Compiled Dosing Histories. BMJ. 2008;33:1114-1117. I believe the problem is universal and glaucoma therapy is no different than other therapies.

- Page 6, line 10: the authors should give more details concerning the Ingenix administrative claims database.
- Page 7, lines 14-18: Could the authors explain this again as I am having trouble following this?
- One of the major problems with this study is the last line of page 7 and the first paragraph of page 8. I do not believe there is any good data on how to estimate how long a bottle should last.
- Page 8, line 12: Perhaps the authors could better describe and validate the “2.0 – 2.1 Variable Factor” and the “2.0 Constant Factor”. Also I am not sure that a 45 day imputed supply is a valid assumption.
- Page 10, lines 9-15: “Days covered” and actual “coverage” (proportion of pharmacological duration covered by dosing) are two very different items. The authors should make sure that the readers are clear of the differences and that the readers don’t assume that “days covered” is the same as “coverage”.
- Page 11, line 3: Which covariates?
- Page 12, line 10: The term coverage is incorrectly used.
- Bottom of page 13 and top of page 14: The use of various quantities dispensed makes this analysis more complicated. With latanoprost, there is to my knowledge only a 2.5 ml bottle. With travoprost and bimatoprost there are either multiple sized bottles or bottles with various amount of fill. How did the authors account for this in their initial analysis?
- Page 16, line 12: I personally agree that educational efforts are needed for both physicians and ophthalmologists. However, what should ophthalmologists do? Is there any data validating any educational methods that improve adherence or persistency one year later? If so kindly cite these.

**Level of interest:** An article of limited interest

**Quality of written English:** Acceptable

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

**Declaration of competing interests:**

I declare that I have no competing interests.