Reviewer's report

Title: A segregation index combining phenotypic (clinical characteristics) and genotypic (gene expression) biomarkers from a urine sample to triage out patients presenting with hematuria who have a low probability of urothelial carcinoma

Version: 1 Date: 29 December 2014

Reviewer: Kian Chong

Reviewer's report:

Major revisions:

(1) Under "Methods, patient selection", para 3 - please explain what is "representative test set of 45 patients"? How were they selected to be included in this study?

(2) In the microhematuria group, how many were older and younger than 40 years old. What were the age range of these 45 patients? This study included those older than 18 years old, although most literature shows patients younger than 40 years old were less likely to have urothelial cancer in the first place and full screening is probably not required.

(3) If patients already had "previously undergone cystoscopy" and were found negative, why were they included in this study for microscopic hematuria? This seems to skew the included study population, and also detract from the original aim of this study to find out those with hematuria who had not been screened. Please explain.

(4) Under "Definitions and Statistical Analysis" - the authors defined phenotypic as clinical prognostic characteristics. Please explain why is "average daily frequency of hematuria" included?

(5) How did the authors identify "average daily frequency" in those with microscopic hematuria, especially when it is not symptomatic? I am concerned whether including "average daily frequency of hematuria" is skewing the results of P-index and G+P Index.

(6) Under "Discussion", para 5 - in this study, within the microscopic hematuria patients, is there a difference between the "severity" / how much RBCs are seen under microscope?

(7) For Table 3, do you imply that those who are female, non-smokers and younger than 60 years old will be interpreting their G+P index differently?

Minor revisions:
(1) For Table 3, change title or add legend to explain who is in the "Control" variable. Highlight that this table includes macroscopic and microscopic hematuria patients.

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

**Quality of written English:** Needs some language corrections before being published

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

**Declaration of competing interests:**

Yes. I am planning to start on a study with Pacific Edge Ltd on using their Cx Bladder kit, which will be partially funded and supported by this company.