Reviewer's report

**Title:** Importance and determinants of Gleason score understaging on biopsy sample of prostate cancer in a population-based study.

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**Reviewer:** Charles Rosser

**Reviewer's report:**

In this interesting article by Rapiti et al entitled Importance and determinants of Gleason score understaging on biopsy sample of prostate cancer in a population-based study. The authors confirm previous literature that there is a modest concordance of biopsy Gleason score (grade) with prostatectomy Gleason score (grade) ~ 0.62 (67% exactly matching), then 26% were noted to have increase Gleason score on prostatectomy. Though the above is not novel, the authors further dive into their data and report that the discordance is related to age, number of biopsy cores, stage and time to prostatectomy. Explanation for age as a factor is ok, whereas explanations for other factors are quite good. In particular, it is fascinating how the discordance decreases with the number of biopsies obtained. I think this is quite relevant especially since the EUA has recently reduced the number of cores they recommend from 10 to 8. The goal of the biopsy is to obtain as much accurate information to make clinical decisions. Though there is a small risk associated with added number of biopsy cores it may be well worth it if the biopsy provides critical information especially in the 26% of patients with increased grade on prostatectomy. In fact I think this argument should be a bigger focus of the manuscript. Overall this is a well written, well laid out manuscript that is easy to follow and that adds something new to the literature. If corroborated, then perhaps the recommended number of cores to obtain will increase to at least 10. Below is a point-by-point critique of the manuscript.

**TITLE:** Perhaps through the text understaging should be converted to undergrading.

**ABSTRACT:** First sentence in Methods is a little awkward otherwise no issues.

**INTRODUCTION:** Nice introduction. It lays the groundwork for the study. Perhaps even mention how EUA has recommended reducing the number of biopsy cores.

**METHODS:**

Please state that your local review board approved the study. Did it? As authors state in discussion as a limitation, the same pathologist did not interpret everything. Thus one would anticipate from inter-observer variability.

**RESULTS:**
There is a good range of biopsy cores obtained in the face of EUA recommending 10 then 8 cores. Reasons for this?

Change the wording grade to Gleason score throughout the text.

The OR (multivariate) for age and delay, though significant, are quite minimal thus the significance loses...significance.

REFERENCES:
No issues

TABLES:
Table 1 and 2 are quite similar. Is there a way to pictorial illustrate the concordance?

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

Quality of written English: Acceptable

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:
I declare that I have no competing interests.