**Reviewer’s report**

**Title:** Image quality and pathology assessment in CT Urography: When is the low-dose series sufficient?

**Version:** 0  **Date:** 01 Jun 2019

**Reviewer:** Ernest Ekpo

**Reviewer’s report:**

This study examined various dose protocols and phases on CT urography optimisation. This is an interesting piece of work and is relevant to imaging personnel. However, the paper will benefit from a revision as detailed below:

Abstract: Good, however, the conclusion will benefit from a statement highlighting When the low-dose series is sufficient

Keywords: fine

**Introduction**

There are quite a number of factual statements that are not supported by references or poorly refereed. E.g. "the benefits of CT imaging outweigh the risk for many of these patients"; "Optimisation is not only about..."; "Urolithiasis is a common health..."; "The standardized care pathway (SCP) was introduced in Sweden in 2015..."

P6line 18: "Presented" Grammatical error, please use the correct tense.

Methods of dose optimisation have been introduced but there is no clear rationale for this work. Please add a statement highlighting the rationale.

Methods: The methods are appropriate but need to be better described

-Provide detailed explanation of how SSDE was calculated is needed to allow for reproducibility of the study

The European guideline details the criteria to be used for image quality assessment, and methods such as the ICS, VGA, VGCA etc were developed based on these guidelines. The authors state that they used VGR, which I guess is the VGCA as shown in Table 2B. It would be good to state exactly which four anatomical structures were used for the grading and the number of grading criteria used. I see that this is included in Table 2a, but it would be good to list the structures within the text to enhance understanding.
The authors also need to describe how the calculation was performed to determine the VGCA score. Perhaps provide the formula and describe whether or not VGCA points were generated, if so how they were used to generate a VGCA curve.

Results

Assessment of pathology: "For all three pathology categories, the number of inconclusive scores were very low suggesting that normality and pathology could be assessed in all three phases with marginal differences in scores", where are the results to show this?

Figures 1-3 are fine, but these are too many and make understanding difficult. I would suggest generating a VGCA curve for each phase/dose level. This will provide a simple and easy to understand interpretation of the results

Discussion: The first paragraph would fit into the introductory section as a rationale for this work rather than where it currently is.

The findings of the study are summarised and compared to the literature, however there is no clear discussion regarding the implications of these findings and their relevance to policy and practice. There is also a need to discuss about "When the low-dose series is sufficient" and providing a justification for this.

The conclusion reads like a repetition of the summary of results. I would like to see a concise conclusion focusing on the meaning of these findings and contribution to knowledge rather than restating the results.

References: See comment in the introduction. There are many factual statements that either have no references or poorly refereed.

Tables: Fine

Figures: They are too many. Use VCGA curves instead.

Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

Yes

Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.

Yes

Are the conclusions drawn adequately supported by the data shown?
If not, please explain in your comments to the authors.

Yes

**Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?**

If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

I recommend additional statistical review

**Quality of written English**

Please indicate the quality of language in the manuscript:

Needs some language corrections before being published

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