Review Template for *European Radiology*

This detailed template on how to structure an "ideal" peer review was designed to support our participants of the "Yves Menu Review Fellowship". We are making it available here, as less experienced or junior reviewers may find it helpful as well.

Confidential Comments to the Editor (not visible to authors)

1. What did authors investigate and what was their conclusion (very brief summary, aim for three sentences)

2. What are the main **strengths** and major **concerns** (including ethical issues)? What is the balance between them? Could weaknesses be addressed in a new manuscript? (if possible, identify 2-4 strengths and 2-4 major weaknesses)

3. What is the clinical (or scientific where more appropriate) relevance?

4. Your opinion here: How did you reach your decision recommendation based on points 2 and 3?

Comments to Authors (open to authors and attached to the decision letter)

OVERVIEW

This should be a very brief summary, and it can be identical to point 1 In the Confidential Comments. Describe strengths and weaknesses in general terms, no details here, be concise!

DETAILED COMMENTS

Consider that while following the outline here from "Abstract" to "Ethical Concerns", the core of a study and consequently the emphasis of any review should be the following three sections: Introduction, Methods, and Results. After reviewing the three major sections:

- If the fellow considers the weaknesses to be too many and too critical, they could stop (no need to provide reviews for the discussion & remaining points).
- If it is worth a review, the fellow should continue reviewing the rest of the manuscript.

ABSTRACT

Consider an abstract's relevance. Is the relevant information reported?

1. Objectives: is the aim of the study clearly summarized? The objective should be identical to the aims stated at the end of the introduction!
2. Materials and Methods: Is the methodology of the study explained? This part should contain inclusion/ exclusion criteria, variables and analysis, the study design and date.
3. Results: are they clearly summarized? This part should contain the main results with size effects, confidence intervals and P values.
4. Conclusion: is it clear and short? It should be equivalent to the stated conclusion in the discussion.
5. Overall, abbreviations should be defined, except very common terms (CT, MRI, US) and common acquisition sequence names.
6. The word count of the Abstract should be 250 or less.

KEYWORDS

7. 3-5 keywords that need to be compliant with MeSH. Check with the website MeSH on demand. Copy the proposed keywords into the text field and click "search". The software will confirm the keywords exist or provide alternatives. You can also copy/ paste the entire abstract and MeSH on Demand will extract relevant keywords.

KEY POINTS

8. There should be three key points: 1: Question (20–25 words) – what is the unmet need/ clinical problem the study addresses, 2. Findings (20–25 words) – Objective summary of the main result, 3. Clinical Relevance Statement (maximum 40 words) – benefit for the patient and/or clinical relevance of the study.
9. Generalized, purely subjective statements or speculation are not permitted in key points.

ABBREVIATIONS

10. A list of abbreviations must be included in all manuscripts.
11. If an abbreviation is used only once (or not at all) in the text, it should be deleted from the list.
12. Abbreviations need to be defined at first occurrence in the text.
13. Very common abbreviations (CT, MRI, US) do not need to be defined in the abstract or key points, but should be listed anyway.

TITLE

14. The title should be informative and attractive, for example providing a statement ("contrast-enhanced MRI improves the detection rate of recurrent breast cancer") or a question" Can contrast-enhanced MRI improve the detection rate of recurrent breast cancer?"
15. Avoid "long" titles such as "Magnetic resonance imaging of the Breast : a longitudinal retrospective study in women with previously treated breast cancer" or ambiguous titles like "Contribution of stiffness and biological features for establishing a viability score of treated liver tumours"
16. The title should be as short as possible and include very common and non-ambiguous abbreviations as such CT, MRI, US, etc….

INTRODUCTION

17. The introduction should usually be divided into three paragraphs.
18. The first paragraph is a global positioning of the topic (not of the disease in general), avoiding trivialities like "lung cancer is a life-threatening condition" or "the overall prognosis of glioblastoma multiforme is poor".
19. The second paragraph focuses on the specific issue of the study, presenting why there are questions and debate. Make sure statements are supported by correct references here.
20. The third paragraph of the introduction should be a summarized presentation and aim of the study (a study hypothesis for prospective studies). Ideally, it expresses the question the study should address, and the answer will be readily found as the first paragraph of the Discussion, the conclusion and the key points.

MATERIAL AND METHODS

21. Usually, the MM sections provide keys for patient selection and general methods, and the description of the effective numbers should be in the Results section
22. The idea is that any reader should be able to reproduce the experiment if they were under the same conditions (cohort, machines etc…) as the authors
23. The sample: Consider the following main questions:
    The authors should describe if the design was retrospective or prospective. "Prospective" does not equal "prospective recruitment of cases"! Was there any attempt to calculate the sample size? Was it representative of the population under analysis? Was a control group needed? If so, was it correctly matched? How were patients recruited? Think of their inclusion and exclusion criteria. Many times, authors present exclusion criteria simply being the opposite of the inclusion criteria, which makes no sense: you cannot exclude somebody who was not included before. This would be a cause for concern. Think of "missing" inclusion and exclusion criteria.
24. The imaging techniques and analysis:
    Take a detailed look at the imaging techniques and image analysis. These are the study variables, and the technique must make sense in the moment it was applied. All variables must be clearly defined and the authors must report in detail how they obtained them. If you do not understand what they did, other readers or researchers may not understand either. Ask the authors for clarification of "difficult" concepts. Consider if you would be able to reproduce the imaging design and the data extraction (under the same circumstances as the authors).

25. Try to understand the statistics. This is a clinical radiology journal aimed mainly at radiologists and focused on radiological applications. Consequently, statistics should be presented clearly and correctly, yet easy to understand. Are the comparisons clearly presented? Is there an internal logic to the presentation? Keep in mind that the structure of the analysis must be the same as the structure of the results section. All analyses must be included here, any appearing in the results section without any previous description in the Methods section may denote a careless job.

RESULTS

26. The final selection of the population should be detailed in this section. The population selection can be presented in a flow chart (usually as Fig 1).
27. Simple results with few numbers can be presented in the text. When there are larger data, it is better to build tables and be sure that the caption is self-explanatory.
28. All results from the study should be in this section. There should not be any result, even ancillary, popping up in the discussion.
29. Check that all the reported analyses from the methods section are represented with their results here. Consider whether the methods you checked before will support the validity of the results.
30. Check that diagnostic performance, outcomes, predictions, agreements are presented with their 95% confidence intervals.
31. Think about the clinical relevance of the results and then wait for the authors' interpretations.

DISCUSSION

32. A very common problem is the overlap between the Introduction and the Discussion. Most authors start the discussion with some kind of lecture about the question, which should be avoided. Deleting this contributes to shorten the manuscript, which is often desirable.
33. The first § answers the initial question. It summarizes and interprets the results. This paragraph should not include general considerations about the disease or the method. Commonly, authors repeat and develop information already written in the introduction.
34. The second paragraph should be a comparison with the literature, explaining why this study has added value, and clarifying potential discrepancies, usually related to different sample sizes, sample characteristics, methodologies or machines. Specific features might also be mentioned in this paragraph.
35. The third paragraph honestly addresses limitations and potential biases.
    This is a very important part of the discussion. Discussing the limitations does not mean a rebuttal but a recognition of the way they affect one's work and, at the same time, why they do not invalidate it. Suggestions for improvement must be included. Often, authors just enumerate a very brief list of shortcomings without further insight. Remember that recognising a limitation does not mean that the potential bias has been avoided.
36. The conclusion usually consists of one or two short sentences that explain the final added value of the study. Think whether the conclusions may be overstated. Do the results really support the conclusions?

FIGURES/TABLES

37. Figures should be of high quality, with clear annotations whenever necessary. Be careful that figures in the PDF may not reflect the quality of the original pictures. A download link to the full resolution images is always present in the PDF. Abbreviations should be defined in table footnotes and figure legends.
38. Figure captions should be self-explanatory and standalone. Verify that the figure shows what the legend indicates.
39. Each figure should illustrate a different topic, without any overlap.
40. Check that there are no missing illustrations, for instance when authors mention the importance of a specific image feature (example: “the arrow in figure 2d marks ...” while there is no arrow in figure 2d).

BIBLIOGRAPHY

41. Check if recent topical references are missing with a quick survey on Pubmed. In case the manuscript had previously been submitted to another journal, the references might not have been updated and some recent, relevant citations may be missing.
42. As it is impossible to check all references in detail, it might be a good idea to verify a couple of them, either randomly, or because the statement in the text and the title of the reference do not fit perfectly.
43. Sometimes, the referenced paper does not at all report on the statement cited in the manuscript. One possible reason is that there is no automatic update of the tags whenever the list is changed.
44. Whenever possible, references should call on individual scientific studies, rather than reviews or educational papers.
45. Check if the format is correct, according to the instructions to authors. Be careful, the Springer format is very specific.

INFORMED CONSENT/ ETHICAL CONSIDERATIONS

46. Should be explained at the beginning of the Material and Methods section.
47. Especially important for prospective studies.
48. Try to detect if the study was made on examinations that are part of basic routine, or if they were added specifically for the study. If the latter, evaluate if

    - There was a potential benefit for the patient
    - The additional examinations were low risk (chest X Rays, Ultrasound) or middle/high risk (contrast media injection, high dose CT)

49. Sometimes authors claim they collected informed consent in retrospective studies.