

IMPROVING MANUSCRIPT QUALITY VIA STRUCTURED REVIEWS, ENHANCED SCIENTIFIC CATEGORY TAXONOMY, AND OUTREACH

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Improving the quality of manuscripts is crucial to improving journal impact.

With this in mind, Medical Physics:

- Has implemented a structured template review form
- Has implemented a comprehensive scientific category taxonomy to identify reviewers who are best suited to an article
- Fostering outreach in important areas that are currently underrepresented in Medical Physics

WHY INSTITUTE A TEMPLATE FOR REVIEWS?

- Reviewer inexperience
- Even experienced reviewers miss important points
- Standardization of review elements

BACKGROUND: WHAT QUALITIES DISTINGUISH GOOD REVIEWS?

Journal of International Business Studies: Best reviews offer specific and constructive feedback to address problems, have a collegial tone (no harsh criticism).

Annals of Behavioral Medicine: Advocates that good reviews should be "respectful" and "offer corrective feedback" if the manuscript is eventually publishable.

Molecular Biology of the Cell: Be critical, but also provide constructive feedback. Be judicious about requiring extra work that is tangential to the manuscript's objective.

The Academy of Management Journal: Bad reviews are characterized by reviewers focusing on uncovering flaws and aggressively highlighting them (very little positive or constructive feedback).

AJR: Looked at reviewer quality scores based on level of sophistication, quality of feedback for improvement, amount of detail, and punctuality. Younger reviewers from academic institutions scored highest.

BACKGROUND: WHAT QUALITIES DISTINGUISH GOOD REVIEWS?

In general:

- Collegial reviews that do not aggressively highlight flaws
- Positive and constructive feedback for improvement
- Judicious requirement of additional work
- Attention to detail

BACKGROUND: HOW TO ACCOUNT FOR REVIEWER PERCEIVED IMPORTANCE/IMPACT OF THE MANUSCRIPT?

Dilemma:

- Incremental work: technically sound and hence may not be rejected by reviewers/associate editor.
- Promising but premature work: rejected from a technical perspective, but potentially high impact if given feedback for improvement.

Several journals use an importance scale with some acceptance threshold.

MEDICAL PHYSICS REVIEWER TEMPLATE

- Designed by WG1.
- Divided into 2 major sections:
 1. Overall assessment (mandatory): free form review, suggestions for improving manuscript, importance scale.
 2. Section-specific feedback (optional): alerts reviewer to key elements in each section of the manuscript.

MEDICAL PHYSICS REVIEWER TEMPLATE

- Show html review file

SUBJECT MATTER TAXONOMY

- A more refined taxonomy for identifying appropriate AEs and reviewers.
- Rationale:
 - Reviewers assigned to broad categories may not have specific subtopic experience under these broad categories.
 - Identifying better AEs/reviewers -> better final article.
 - Inclusion of new/emerging areas
- Designed by WG1 .
- Now on Version 3 (31 major categories in Imaging, Therapy, mixed Imaging/Therapy; each major category contains subcategories)

OUTREACH TO RELATED COMMUNITIES

- Special issue (Nov. 2018): “Current Challenges and Prospects in Particle Therapy”, edited by Jonathon Farr and Katia Parodi, due to appear in November 2018.
- Special issue (Oct. 2018): Big data, consisting of papers with consensus recommendations arrived at during the Practical Big Data Workshop hosted in Ann Arbor, Michigan (May 2017), sponsored by AAPM Science Council. Four to five papers with consensus recommendations expected on: Key Data Element Standardizations and Nomenclatures; Templates in Radiation Oncology Information Systems and Electronic Health Records; Optimized Clinical Practices for Aggregation and Curation.
- Special issues for 2019:
 - submissions from the the “5th International Conference on Image Formation in X-ray Computed Tomography” (May 20-23, 2018, Salt Lake City)
 - Machine learning special issue

THANK YOU!
