Journal Peer Review: Processes and Innovations
James Murphy, Director, Research & Professional

Slides adapted from presentations by Verity Warne, Michael Willis, and Heidi Allen of Wiley
What is Peer Review?

In its basic form...

“A process by which a scholarly work is checked by a group of experts in the same field to make sure it meets the necessary standards before it is published or accepted”

- Merriam-Webster
Peer review is also...

- A process of training and learning
- A forum for networking
- A focus of criticism and discussion
- An area of growing experimentation and innovation
Peer review process

Author submits article

1. Article assessed by editor
2. Sent to reviewers
   - Further review needed?
   - Reviews assessed by editor
     - Accepted
     - Revisions required
     - Rejected

- Author submits revised manuscript
- Accepted
- Rejected

Publication

Production
Benefits of Peer Review

Trust and quality

“Peer review is the central pillar of trust for researchers”
University of Tennessee and CIBER Research Ltd, 2013

Peer review makes science better

“90% of researchers feel that peer review improves the quality of their published paper”
University of Tennessee and CIBER Research Ltd, 2013
Benefits of Peer Review
Authors and publisher contribution

**Good peer review attracts authors**
Our authors tell us that the peer review process and speed are the #1 contributing factors to a pleasant publishing experience

> “Refereeing quality and refereeing speed are most important factors attracting authors to publish in a journal”
> Mabe & Mulligan, 2011

**It’s where we add value**
> “Organizing and managing peer review is viewed by researchers as the crucial role for publishers”
> University of Tennessee and CIBER Research Ltd, 2013
What authors care about

“The reviewers worked me very hard but made a genuine commitment to provide excellent feedback which assisted in the development of the article.”

1. Speed to publication
2. Quality of peer review
3. Understanding reviewer comments
What distinguishes an excellent reviewer experience from a ‘middling’ experience?

“An excellent review experience usually involves my own learning—either through the research I’m reviewing or, less commonly, comments from the editorial team on the quality of my review.”

“The editor and his immediate staff of handling editors… when the editor is fully engaged in the peer review process and applies a personal touch with my fellow reviewers, it makes a difference to me in the overall experience.”
Criticisms of Peer Review

- Black box
- Takes too long
- Too few reviewers
- Costs too much
- Weak at detecting mistakes, fraud
- Biased
- Web changes everything
QUANTITY: How many submissions are rejected after going through a review process?

3,360,207 submissions per year

TIME: How many hours total are spent in the review process?

5 hours per review

2.3 reviewers per submission

11.5 Average reviewer hours spent per submission

1,310,496 submissions per year with wasted review time

= 15,070,706 hours per year
US researchers review 10% more than they publish.

Chinese researchers publish twice as many papers as they review.
Who is feeling the pressure the most?

Life Sciences 2014

- Canada
- Germany
- United Kingdom
- China
- United States

Percentage of Total Reviewers, 2014

Percentage of Total Authors, 2014
Who is feeling the pressure the most?
Health Sciences 2014

- **Japan**
- **China**
- **Australia**
- **United Kingdom**
- **United States**

**Percentage of Total Reviewers, 2014**

**Percentage of Total Authors, 2014**
50% of referees review for 5 or more journals
What editors care about

“I recently invited nine people to capture two reviewers…To address this problem, we need more reward options..”

1. Recruiting reviewers
2. Reviewer timeliness
3. Assessing, and rewarding, quality of review
77% of reviewers would participate in peer review training sessions.
“I work hard with my own students to mentor them through their first review experiences, but, increasingly, I just don’t see that as the case with my peers. We need early career reviewer training to be part of Wiley’s publishing platform.”

Roger Watson, EIC, Journal of Advanced Nursing
But, established researchers want training too

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<thead>
<tr>
<th>Topic</th>
<th>Early Career</th>
<th>Established Career</th>
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<tr>
<td>Providing constructive, useful feedback</td>
<td>270</td>
<td>150</td>
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<td>Constructing a review report</td>
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<td>Introduction to becoming a peer reviewer</td>
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<td>Working with editors during the review process</td>
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<td>107</td>
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- **Pie Chart**: 68% Yes, 32% No for established career.
Usefulness of reviewer resources

For early career:
1. Reading of journal level guidelines for reviewers
2. Guidance from my PI/Supervisor
3. Publisher guidelines and advice
4. Participation in reviewer mentoring scheme
5. Physical workshops/seminars on how to review

For established career:
1. Reading of journal level guidelines for reviewers
2. Publisher guidelines and advice
3. Reading of general review ethics guidelines (e.g., COPE)
4. Participation in reviewer mentoring scheme
5. Physical workshops/seminars on how to review
Measuring reviewer performance
What does “good” look like?

“Scientific journal editors and peer reviewers are well placed to help to identify research reports that are not fit for purpose. The irony is that few editors and peer reviewers are adequately trained, and so they might find detection of inadequate reports difficult.”

Glasziou, Altman, Bossuyt et al., Reducing waste from incomplete or unusable reports of biomedical research, The Lancet, 2014
“ I have conducted hundreds of peer reviews in my 40-year career, and there is virtually no difference in the review experience from publisher to publisher and journal to journal.”

Startups, Innovators and Market Disrupters are addressing painpoints and shifting expectations
# Types of Peer review

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<th>Modality</th>
<th>Pros</th>
<th>Cons</th>
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<td><strong>Single-blind</strong></td>
<td>• Encourages frank opinion</td>
<td>• Reviewers may be unnecessarily critical</td>
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<td></td>
<td>No retribution</td>
<td>• Authors fear their work is purposefully delayed</td>
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<td>Traditional</td>
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<tr>
<td><strong>Double-blind</strong></td>
<td>• Prevents bias</td>
<td>• Author still identifiable (writing style, topic, citations)</td>
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<tr>
<td><strong>Open</strong></td>
<td>• More honest (transparent)</td>
<td>• Less honest (polite)</td>
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<tr>
<td>Innovative</td>
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<tr>
<td><strong>Post-publication</strong></td>
<td>• Encourages further checks, dialog</td>
<td>• Quality control of comments</td>
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<td>Everybody knows</td>
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Other Peer Review Innovations

3rd Party Peer Review

Review Validation & Collaboration

Reviewer Recognition

- Rubriq
-axios REVIEW
- Peerage of Science
- frontiers
- eLIFE
- F1000
- publons

ORCID
Transferable peer review
In use at more and more publishers

First Step
Author submits to first choice journal

Second Step
Article undergoes peer review and reviewers complete standard scorecard

Third Step
If rejection decision, author is given option to transfer to a participating journal

Fourth Step
Articles, reviews, and scorecard are transferred to new journal on author’s behalf

Final Step
New journal considers article and may request additional peer reviewers if needed

80 Days
Average length of time that review takes...and it starts all over again if the paper is rejected.

70 Percent
Acceptance rate of transferred papers for journals currently participating in the pilot program.
Peer review variables

- **Transparency**
  - Open peer review
  - Closed peer review

- **Submission process**
  - Direct to a journal
  - To a 3rd party
  - Transfer within “family”

- **Timing**
  - Pre-publication
  - Post-publication

- **Decision process**
  - Independent review
  - Interactive review
  - Collaborative review

- **Reviewer selection**
  - Authors recruit reviewers
  - Editors recruit reviewers
  - Reviewers “bid” for papers

- **Assessment of...**
  - Science only
  - Science + novelty or impact
Today
Blinded peer review system prevails
Minimal recognition and reward for peer reviewers
Inefficient matching of reviewer-to-review task
Marginal data analytics for editor/reviewer performance benchmarking

Future
More author-driven peer review model choices
Robust reviewer recognition infrastructure
Better matching tools to find reviewers best-suited to review
Use of more technology to expedite reviewer tasks
Improved data analytics for benchmarking and reporting
Thank you