Registered Reports 2.0
Introducing the Peer Community in Registered Reports

Zoltan Dienes
University of Sussex

Thanks to Chris Chambers for slides!
Registered Reports

Stage 1
Submit Introduction, Method and analytic protocol

Reviewers assess Theory, rationale, rigour, robustness of method

Stage 2
Stage 1 Introduction + Method
Analysis of data using pre-defined plan (+ any exploratory analyses)

Reviewers assess Compliance with study protocol and whether conclusions are based on the evidence

In-principle acceptance
Currently adopted by 292 journals

RRs launched in March 2013 in Cortex

2014 First RR published in Perspectives on Psych. Science; CRSP becomes first dedicated journal to RRs

2017 RR funder journal partnership declared

2018 100th RR published

2019 PLOS Biology becomes 200th adopter of RRs

2020 RSOS and 11 journals launch rapid review network for Covid RRs
Early impacts are promising

- Popular with ECRs: ~80% first authored by PhD students or post docs

- ~5-10 times more likely to disconfirm hypotheses (60% vs ~12% across fields; Allen & Mehler 2019; 56% vs 4% in psychology; Scheel et al. 2020)

- Higher reproducibility of main results from the original data than regular articles (Obels et al. 2019)

- Methodological rigour and quality of RR papers rated substantially higher than non-RR papers (Soderberg et al., 2021)

- Cited same or more than regular articles (Hummer et al. 2019)
But they aren’t perfect. Known limitations include:

1. Stage 1 review time

2. Needing to commit to a journal before results are known

3. Not well suited to programmatic research where one Stage 1 protocol could lead to multiple Stage 2 outputs (current model is one S1 → one S2)

4. Inconsistent editorial standards and levels of training/experience

5. Inconsistent transparency of accepted Stage 1 protocols (Hardwicke et al. 2018)
But they aren’t perfect. Known limitations include:

6. Inconsistent policies on open peer review

7. Inconsistent policies on open access and availability of Stage 2 articles

8. Unclear policies on applicability of RRs for analysis of existing data

9. Limited capability to work with funders on RR research grant models due to legal barriers that restrict cooperation between public funders and corporate publishers
Peer Community In Registered Reports

Web: https://rr.peercommunityin.org/
Twitter: @PCI_RegReports
Email: contact@rr.peercommunityin.org

Founders: Corina Logan, Emily Sena, Zoltan Dienes, Chris Chambers, Ben Pujol

Peer Community in Registered Reports (PCI RR) is a free, non-commercial platform dedicated to reviewing and recommending Registered Reports preprints across STEM, medicine, the social sciences and humanities.
Once a submission is recommended by PCI RR following peer review, the revised manuscript is posted at the preprint server where the preprint is hosted, and the peer reviews and recommendation are published at the PCI RR website.

Authors then have the option to publish the preprint in a traditional journal, including a growing list of PCI RR-friendly journals that have committed to accepting PCI RR recommendations without further peer review.

Founders: Corina Logan, Emily Sena, Zoltan Dienes, Chris Chambers, Ben Pujol
How it works

1. Submit your RR to PCI RR as a private or public URL to a file in a repository (e.g. OSF, GitHub).

2. PCI RR website.
   - your RR is peer reviewed.
   - not considered for peer review.

3. Revised versions.
   - submission fails to meet Stage 1 criteria.

4. Your RR is recommended.

5. Conduct your study.

   - Deposit preprint at preprint server.
   - Revised versions.
   - Recommended, peer reviewed preprint.
   - Valid, citable final article AND can still be submitted to a journal.

7. Submit preprint to PCI RR.

8. PCI RR process Stage 2.
   - Preprint assessed by recommender and reviewers.
   - Your preprint is recommended.

9. Citable recommendation text + reviews published by PCI (DOI).
   - PDF.
     - Open access.
     - Free for authors and readers.
     - Searchable.

Optional: submit to PCI RR-friendly journal where article is accepted without further peer review.
PCI RR-friendly journals commit to accepting PCI RR recommendations without further peer review. **You, the author, decides which journal gets to publish your Stage 2 RR**

[https://rr.peercommunityin.org/about/pci_rr_friendy_journals](https://rr.peercommunityin.org/about/pci_rr_friendy_journals)
List of PCI RR-friendly journals

There are currently 18 PCI RR-friendly journals. The current list can be viewed in spreadsheet and PDF format, and details of each journal's commitment and eligibility requirements are also listed below.

For open access journals, authors are strongly advised to check the journal website for latest information concerning article processing charges.

Journals interested in becoming PCI RR-friendly can learn more about the requirements here and can apply to join here.

- Addiction Research & Theory
- BMJ Open Science
- Cortex
- Experimental Psychology
- F1000Research
- Infant and Child Development
- Journal for Reproducibility in Neuroscience
- Journal of Cognition
- Meta-Psychology
- NeuroImage: Reports
- PeerJ
- PeerJ Computer Science
- PeerJ Physical Chemistry
- PeerJ Organic Chemistry
- PeerJ Inorganic Chemistry
- PeerJ Analytical Chemistry
- PeerJ Materials Science
- Royal Society Open Science
List of PCI RR-interested journals

Where authors seek to maximise the chances of their manuscript being picked up by a PCI RR-interested journal, we recommend they consult the journal's RR policy to determine what additional conditions may need to be met, over and above the PCI RR review criteria. For instance, some PCI RR-interested journals set a more stringent requirement on pre-planned evidence strength (including prospective statistical power or Bayes factors) while others may only consider RRs where data do not exist prior to in-principle acceptance (in line with Level 6 of the PCI RR bias-control taxonomy).

The list of PCI RR-interested outlets below includes a link to each journal's RR author guidelines.

- Affective Science [RR author guidelines TBC]
- Biolinguistics [RR author guidelines]
- Collabra: Psychology [RR author guidelines]
- Nature Human Behaviour [RR author guidelines]
- PLOS Biology [RR author guidelines]
Other unique features

**Programmatic RRs:** One Stage 1 manuscript leading to multiple Stage 2 outputs

**Scheduled Review:** Following submission of a one-page Stage 1 “snapshot”, peer review is scheduled in advance so that the Stage 1 review time following full manuscript submission = days rather than weeks
Standard review

Receive -> triage -> sent .......................................................... decision
Manuscript to review

Scheduled review

Receive -> triage -> reviewers -> authors prepare -> ...review...decision
snapshot agree date manuscript
1. Briefly summarize the theory

2. Predictions to be tested

3. Study design

4. State conclusions that follow from different possible results: How would each prediction be supported or refuted?
PCI RR recommenders (editors) take a training and pass a test

PCI RR Recommender's Entrance Test

Welcome to the PCI RR Recommender's Entrance Test. This test is designed to assess basic knowledge of the RR format, the core policies of PCI RR, and best approaches for tackling challenging scenarios.

The test includes 66 questions over 5 sections. Please allow 2 hours to complete the test.

All information that prospective recommenders need to pass this test is contained in the guidance and the links at the top of each section. A pass grade is 63 out of 66 points (95% correct) and the test can be taken as many times as necessary.
QUESTION 2: PCI RR recommender test

Which of the following is NOT one of the Stage 1 criteria for a Registered Report evaluation at PCI RR?

- The scientific validity of the research question(s)
- The importance of the research question(s)
- The soundness and feasibility of the methodology and analysis pipeline
QUESTION 2: PCI RR recommender test

Which of the following is NOT one of the Stage 1 criteria for a Registered Report evaluation at PCI RR?

- The scientific validity of the research question(s)
- The importance of the research question(s)
- The soundness and feasibility of the methodology and analysis pipeline
QUESTION 3: PCI RR recommender test

Suppose PCI RR receives a Stage 1 manuscript proposing a study in which the data that will be used to answer the research question have been accessed and partially observed by the authors. The authors also certify that they have NOT yet sufficiently observed the key variables within the data to be able to answer the question. Is this submission likely to be eligible for consideration?

- Yes, provided additional steps are taken to control risk of bias
- No, the risk of bias in this scenario is too high for PCI RR
<table>
<thead>
<tr>
<th>Level</th>
<th>Data already exist or will exist prior to IPA</th>
<th>Data are accessible to the authors</th>
<th>Data have already been observed by the authors</th>
<th>At least some data have already been observed by the authors</th>
<th>Key variables in the data have already been observed by the authors</th>
<th>Authors have already analysed key variables in the data</th>
<th>Risk of bias due to prior data observation</th>
<th>Multi-disciplinary inclusivity</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
<td>Zero</td>
<td>Very low</td>
</tr>
<tr>
<td>5</td>
<td>✓</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
<td>Very low</td>
<td>Very low</td>
</tr>
<tr>
<td>4</td>
<td>✓</td>
<td>✓</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>3</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
<td>Moderate</td>
<td>Moderate</td>
</tr>
<tr>
<td>2</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✗</td>
<td>✗</td>
<td>High – additional steps required to control bias</td>
<td>High</td>
</tr>
<tr>
<td>1</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>Very high – stringent steps required to control bias</td>
<td>Very high</td>
</tr>
</tbody>
</table>
### What are the benefits of PCI RR?

<table>
<thead>
<tr>
<th>Benefit</th>
<th>Regular non-RR article at a traditional journal</th>
<th>RR at a traditional journal</th>
<th>RR at PCI RR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Offers pre-study peer review</td>
<td>✗</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Offers in-principle acceptance before results are known</td>
<td>✗</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Offers programmatic RRs: one Stage 1 RR leading to multiple Stage 2 manuscripts</td>
<td>✗</td>
<td>✗</td>
<td>✓</td>
</tr>
<tr>
<td>Offers scheduled review to accelerate the Stage 1 review process</td>
<td>✗</td>
<td>✗</td>
<td>✓</td>
</tr>
<tr>
<td>Requires handling editor (or recommender) to have proven their knowledge of RRs by passing an entrance test, which serves as useful training of a rarely taught skill</td>
<td>✗</td>
<td>✗</td>
<td>✓</td>
</tr>
<tr>
<td>Peer review undertaken independently of any journal</td>
<td>✗</td>
<td>✗</td>
<td>✓</td>
</tr>
<tr>
<td>Author has the power to decide their destination journal (if any)</td>
<td>✗</td>
<td>Very rare</td>
<td>✓</td>
</tr>
<tr>
<td>No need for author to decide on destination journal until after Stage 2 acceptance by PCI RR</td>
<td>✗</td>
<td>Very rare</td>
<td>✓</td>
</tr>
<tr>
<td>Peer reviews for accepted manuscripts published online and free to read</td>
<td>✗</td>
<td>Very rare</td>
<td>✓</td>
</tr>
<tr>
<td>Free for authors and readers</td>
<td>Depends on journal</td>
<td>Very rare</td>
<td>✓</td>
</tr>
</tbody>
</table>