

RePAIR Consensus Guidelines

Responsibilities of Publishers, Agencies, Institutions, and Researchers in Protecting the Integrity of the Research Record

The following guidelines emerged from the collaborative effort of a working group from the conference entitled Keeping the Pool Clean: Prevention and Management of Misconduct Related Retractions held on July 20-22nd in Fort Collins, Colorado, USA¹. Collectively, this twenty member working group has expertise spanning multiple scientific and professional disciplines with representatives from fifteen institutions, two U.S. government agencies, and five countries.

Researchers, institutions, agencies, and publishers have complementary roles and responsibilities in maintaining the integrity of the research record [1]. The following guidelines define the respective responsibilities of key stakeholders when questions arise regarding possible research or publication misconduct and identify barriers to communication as well as potential solutions.

Responsibilities

The signatories of the **RePAIR** consensus document support the adoption of the following responsibilities in handling allegations of research misconduct and correcting the research record:

Researchers

1. Maintain compliance with, and foster an environment conducive to, the highest research ethical standards and robust and rigorous research practices;
2. Address and communicate observed likely ethical breaches as appropriate;
3. Sustain and create a local environment in which ethical issues can be safely and honestly discussed;
4. Employ rigorous experimental and analytical methods;
5. Maintain careful and accurate research records of all primary data, protocols, and other procedures (including analyses, software/code version);
6. Archive data and documentation according to applicable guidelines set by funding agencies and institutions;
7. Regularly review raw data among the group leader, those who created the data, and other interested parties;
8. Perform and report robust and transparent data analysis;
9. Provide primary data and documentation on request (in the case of human subjects research, appropriate safeguards to ensure patient confidentiality must be in place);
10. Cooperate with government, institutional, and journal inquiries.

Institutions

1. Designate a Research Integrity Officer or equivalent administrative officer to ensure institutional research activities are in compliance with regulations and community standards;
2. Ensure prominent posting of contact information for designated Research Integrity Officer;
3. Create an environment that fosters ethical behavior and rigorous practice through effective mentoring, education, and institutional oversight;
4. Establish clear, confidential channels to report allegations of misconduct and protect whistleblowers from retaliation;
5. Perform thorough, timely, and impartial assessment and investigation of credible allegations of research misconduct in accord with relevant rules, policies, and laws;
6. Protect both respondent and complainant privacy (to the extent possible) during ongoing investigations;
7. Provide findings (redacted according to institutional policy) upon request from investigations when misconduct is found;
8. Identify publications that warrant retraction or correction and provide timely notification and details to journals;

¹ Conference funded by the Office of Research Integrity, U.S. Department of Health and Human Services, grant #ORIIR150014 (Principle Investigator CJ Broccardo) and Colorado State University

9. Cooperate in investigations and communicate with publishers and responsible government agencies as appropriate.

Publishers

1. Use reasonable measures to screen manuscripts for inappropriate textual and/or image duplications, discrepancies indicating inappropriate image manipulation, statistical irregularities, and other common pitfalls before publication;
2. Publish clear policy and process guidelines regarding research and publication misconduct;
3. Examine suspicions or allegations of serious problems in submitted manuscripts or published work (e.g. fraudulent data), starting by asking the authors for an explanation, and, if appropriate, requesting primary data; ;
4. Notify institutions when misconduct involving a publication or submitted manuscript is suspected after consideration of the authors' response; publishers should consider adding to their authorship policy a requirement for authors to supply appropriate contact information from their institutional representatives, such as the Research Integrity Officer, at the time of manuscript submission;
5. Determine which publications warrant retraction, expression of concern, or correction in accordance with COPE guidelines [2];
6. Cooperate with institutional investigations involving allegations of research misconduct, including sharing of relevant information within publishers' stated policy guidelines;
7. Issue freely available retraction/correction notices that provide a summary of the retraction, including who is retracting the article (e.g. author/s, institution, editor) and reason for retraction, in accordance with COPE guidelines [2];
8. Ensure retracted articles are clearly identified as such by search engines.

(Regulatory or Funding) Agencies

1. Publically post contact information to which misconduct concerns may be reported;
2. Perform thorough, timely, and impartial oversight and/or investigation of credible allegations of misconduct according to relevant agency policy;
3. Execute relevant legal mandates;
4. Assess appropriate penalties (including appropriate recommendations for correcting the research record) for those found guilty of research misconduct;
5. Notify public according to applicable federal or agency policy.

Overcoming Barriers to Communication: An Agenda for Harmonization

The responsibilities of researchers, institutions, agencies, and publishers in protecting the integrity of the research record are complementary and interdependent. In order to encourage collaboration, it is important to recognize the complexities and recurrent barriers to communication and to discuss potential solutions. The following challenges are frequently encountered in the communication process but should not be viewed as insurmountable barriers. We offer suggestions for moving through these roadblocks and outline opportunities for harmonization.

1. Privacy laws (confidentiality of investigations) can hinder sharing of information when manuscript should be corrected/retracted.

Privacy policy and/or laws vary greatly between institution, agency and country, which make it difficult to share protected information during and even after an investigation, regardless of the conclusion. Establishing and posting clear policies on how to handle allegations of research misconduct can serve to set reasonable expectations, especially regarding confidentiality. When possible, policies should be commonly agreed upon between institutions and journals to simplify legal permissions and to promote compatibility and legitimacy of policies.

2. Threats of legal action.

The best defense against researchers or authors who threaten to sue is for institutions to carry out thorough and confidential investigations into allegations of research misconduct.

3. Inadequate regulatory oversight in some countries.

Not all countries have a central agency or policy on how to handle allegations of research misconduct, although this is a topic of active conversation in Europe [3, 4]. Many U.S. agencies have avenues for reporting concerns of research misconduct (NIH, NSF, USDA, FDA), and other systems include Sweden's independent Expert Group for Scientific Misconduct at the Central Ethical Review Board, and the Australian Research Integrity Committee all of which could serve as a model for other groups seeking to establish mechanisms for reporting and investigating allegations of misconduct.

4. Inadequate research integrity oversight in some institutions.

Institutions should designate a Research Integrity Officer or equivalent administrative officer to oversee compliance of research activities in accordance with institutional policy and community standards, and ensure prominent posting of contact information. Additionally, the Research Integrity Officer should establish clear, confidential channels to report allegations of research misconduct and protect whistleblowers from retaliation.

5. Ineffective information sharing among journals as well as between journals and institutions.

The Committee on Publication Ethics (COPE) has outlined suggestions for cooperation between journals and institutions in cases of research misconduct [5].

6. Poor awareness regarding reporting options.

Institutions and agencies have the responsibility to clearly post and publicize channels and contacts for reporting allegations of misconduct.

7. Inadequate whistleblower protections.

Institutions and agencies must protect whistleblowers from retaliation.

8. Transparency and conflicts of interest.

It is the duty of researchers, institutions, and journals to prevent conflicts of interest from interfering with the open and honest communication and/or investigation of allegations of research misconduct. Conflicts of interest could include financial interests and fear of reputational loss, among others.

9. Researcher unawareness of responsible conduct of research and/or good research practices.

Institutions should facilitate the education of faculty and trainees in the responsible conduct of research (RCR) and good research practices, when possible by embedding responsible and ethical research practices within the core training curriculum of every researcher. This could also include mandatory RCR training or the signing of an ethics code of conduct.

10. Unhealthy institutional climate.

Bad actors do not exist in a vacuum. Institutional environments have an enormous effect on their employees' attitudes and behavior. High-level administrators must understand how researchers are affected by pressure, inadequate oversight, a climate of unhealthy competition, and other toxic situations – and they must respond properly.

11. Time limitations.

Investigating allegations of research misconduct constitute a considerable time and cost commitment. By establishing clear research misconduct policy and procedures and committing to timely communication between stakeholders involved parties may spare substantial time and resources.

Conclusion

This document serves to summarize the respective roles of key stakeholders in the retractions process and proposes solutions to common communication barriers. It is important to note that many, if not most, retractions are not due to research misconduct, but rather other factors including, but not limited to, irreproducible research, honest error, authorship disputes, or lack of necessary approvals (i.e. institutional human/animal/biosafety approval). Regardless of the reason for retraction the above stated responsibilities apply.

References

1. Steneck, N., T. Mayer, and M. Anderson, *Singapore Statement on Research Integrity. Principles and Responsibilities for Research Worldwide*. 2010: <http://www.singaporestatement.org/statement.html>.
2. Wager, E., et al., *Committee on Publication Ethics Retraction Guidelines*. 2009: http://publicationethics.org/files/retraction%20guidelines_0.pdf.
3. Godecharle, S., B. Nemery, and K. Dierickx, *Guidance on research integrity: no union in Europe*. *Lancet*, 2013. **381**(9872): p. 1097-8.
4. Hiney, M., *Research Integrity: What it Means, Why it Is Important and How we Might Protect it*. 2015, Science Europe: Brussels, Belgium.
5. Wager, E. and S. Kleinert, *Cooperation between research institutions and journals on research integrity cases: guidance from the Committee on Publication Ethics (COPE)*. March 2012: https://publicationethics.org/files/Research_institutions_guidelines_final_0_0.pdf.

Further reading (in alphabetical order)

Australian Code for the Responsible Conduct of Research. <https://www.nhmrc.gov.au/guidelines-publications/r39-synopses/r39syn.htm>

CSE's White Paper on Promoting Integrity in Scientific Journal Publications, 2012 Update. www.councilscienceeditors.org

European Science Foundation (ESF)/ All European Academies (ALLEA). The European Code of Conduct for Research Integrity. <http://www.esf.org/activities/mo-fora/research-integrity.html>

Honesty, Accountability and Trust: Fostering Research Integrity in Canada. The Expert Panel on Research Integrity, 2010. <http://www.scienceadvice.ca/en/assessments/completed/research-integrity.aspx>

National Science Foundation. Responsible Conduct of Research. <https://www.nsf.gov/bfa/dias/policy/rcr.jsp>

Office of Research Integrity. Handling misconduct. <http://ori.dhhs.gov/misconduct/>

UK Research Integrity Office. Procedure for the Investigation of Misconduct in Research. www.ukrio.org

Authors (in alphabetical order)

Noémie Aubert Bonn (Hasselt University, Belgium)

Laura Bandura-Morgan (National Science Centre, Poland)

Jeffrey Beall (UC Denver, USA)

Cat Bens (Colorado State University, USA)

Monica Bradford (Science/AAAS, USA)

Lyndon Branfield (Springer Nature, London, England)

Carolyn Broccardo (Colorado State University, USA)

Arthur Buchberg (American Association for Cancer Research, USA)

Ferric Fang (University of Washington, USA)

Shara Kabak (DHHS Office of Research Integrity, USA)

Anna Keith (Colorado State University, USA)

Barb Houser (Colorado State University, USA)

James Kroll (National Science Foundation, Office of the Inspector General, USA)

Jennifer Nyborg (Colorado State University, USA)

Kelly Perry (Colorado State University, USA)

Charon Pierson (Committee on Publication Ethics, USA)

Kenneth Pimple (Indiana University, USA)

Kaoru Sakabe (American Society for Biochemistry and Molecular Biology, USA)

Dan Wainstock (Harvard Medical School, USA)

Tamara Welschot (Springer Nature, Netherlands)

Brad Woods (Colorado State University, USA)

Alice Young (Texas Tech University, USA)