UKSG webinar

Research integrity 2020
New challenges for a new decade

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April 27th 2020

About me and declarations

- Independent research integrity consultant
- Formerly
  - Medic and academic
  - Medical Editor
- Member of the Committee on Publication Ethics (COPE) Council
- Affiliate Senior Associate with Maverick Publishing Specialists

Who are you?

- Who are you?

  An editor or publisher, librarian, researcher, institution, or other.

- Where do you think most responsibility for tackling challenges to research integrity lies?

  Editors and publishers, librarians, researchers, institution or other.

Overview

- Research integrity and best practice
- Research misconduct

  Prevalence
  Motivation
  How it is addressed

- New types of misconduct
- Future challenges

What is research integrity?

What is Research Integrity

Research integrity includes:

- the use of honest and verifiable methods in proposing, performing, and evaluating research
- reporting research results with particular attention to adherence to rules, regulations, guidelines, and
- following commonly accepted professional codes or norms.

[National Institutes of health]

Care and respect

Accountability

Transparency

What is best practice?

How do the principles of

honesty, accuracy, efficiency, objectivity, care, respect, accountability and transparency

translate into practice?

Reproducibility/Replicability

Science informs real world practices

It has to be trustworthy

How do you know what you can trust?

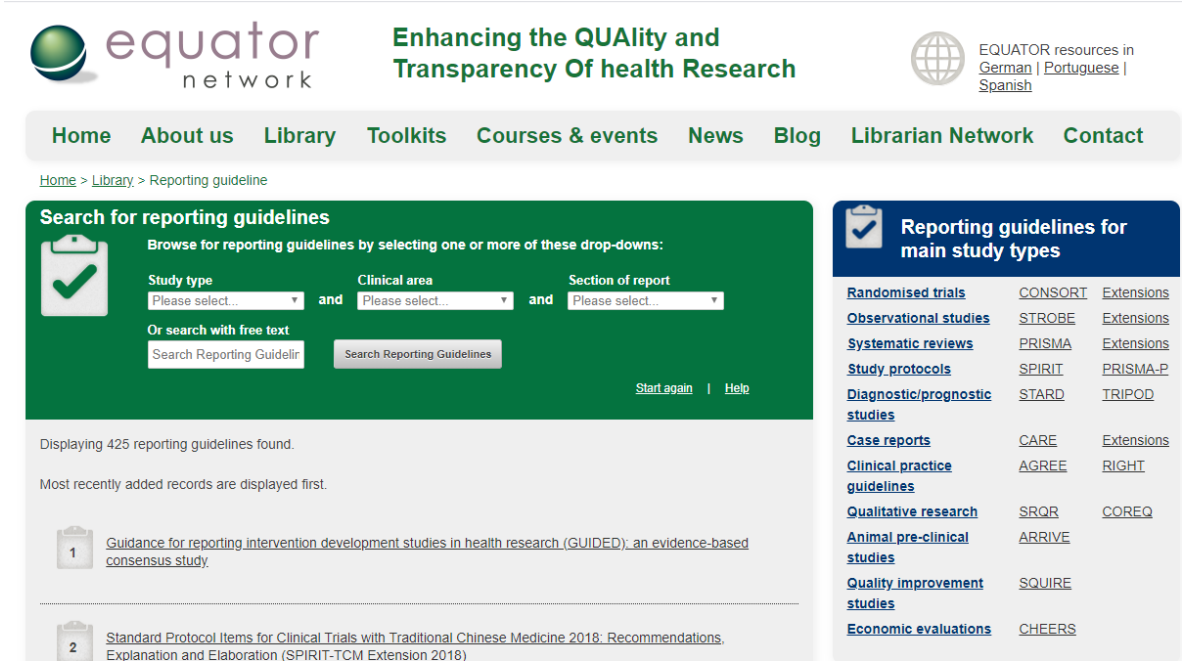
When you can take the data from a study, run the analysis again and get the same results (reproducibility).

And

When you can repeat some else's previous study using the same methods for the same study question and get similar results (replicability).

This is how science is validated

Reporting guidelines



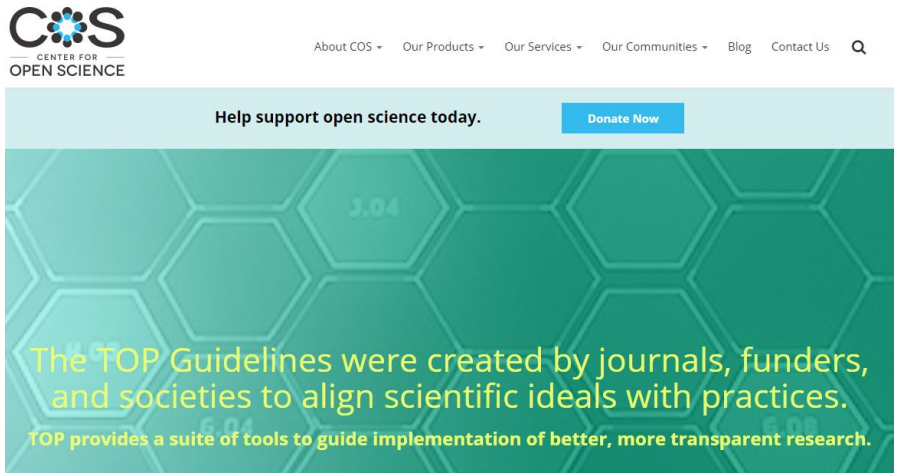
[The Equator Network](#) clinical research

[Principles and guidelines for reporting pre-clinical research](#)

Data sharing (part of Open Science)

[The TOPs Guidelines]

"Provides tools to guide implementation of better more transparent research."



	Not Implemented	Level I	Level II	Level III
Citation Standards	No mention of data citation.	Journal describes citation of data in guidelines to authors with clear rules and examples.	Article provides appropriate citation for data and materials used consistent with journal's author guidelines.	Article is not published until providing appropriate citation for data and materials following journal's author guidelines.
Data Transparency	Journal encourages data sharing, or says nothing.	Article states whether data are available, and, if so, where to access them.	Data must be posted to a trusted repository. Exceptions must be identified at article submission.	Data must be posted to a trusted repository, and reported analyses will be reproduced independently prior to publication.
Analytic Methods (Code) Transparency	Journal encourages code sharing, or says nothing.	Article states whether code is available, and, if so, where to access it.	Code must be posted to a trusted repository. Exceptions must be identified at article submission.	Code must be posted to a trusted repository, and reported analyses will be reproduced independently prior to publication.
Research Materials Transparency	Journal encourages materials sharing, or says nothing.	Article states whether materials are available, and, if so, where to access them.	Materials must be posted to a trusted repository. Exceptions must be identified at article submission.	Materials must be posted to a trusted repository, and reported analyses will be reproduced independently prior to publication.
Design and Analysis Transparency	Journal encourages design and analysis transparency, or says nothing.	Journal articulates design transparency standards.	Journal requires adherence to design transparency standards for review and publication.	Journal requires and enforces adherence to design transparency standards for review and publication.
Study Preregistration	Journal says nothing.	Article states whether preregistration of study exists, and, if so, where to access it.	Article states whether preregistration of study exists, and, if so, allows journal access during peer review for verification.	Journal requires preregistration of studies and provides link and badge in article to meeting requirements.
Analysis Plan Preregistration	Journal says nothing.	Article states whether preregistration of study exists, and, if so, where to access it.	Article states whether preregistration with analysis plan exists, and, if so, allows journal access during peer review for verification.	Journal requires preregistration of studies with analysis plans and provides link and badge in article to meeting requirements.
Replication	Journal discourages submission of replication studies, or says nothing.	Journal encourages submission of replication studies.	Journal encourages submission of replication studies and conducts results blind review.	Journal uses Registered Reports as a submission option for replication studies with peer review prior to observing the study outcomes.

What is best practice for researchers?

Behaving in a way that supports reproducibility

Honest/Accurate/Objective/Transparent

- Be transparent about intent – Declare hypotheses, methods, outcome measures before starting a study – Clinical trial registration, study protocols, registered reports
- Report research and findings fully and accurately – Adhering to reporting guidelines
- Share data, code etc

Honest/Care and Respect/Accountability

- Respect human safety, dignity and rights to privacy. Helsinki Declaration and similar. Ethics committees, Rights to privacy - consent to publish.
- Humane treatment of animals
- Give proper attribution for others' work – citations, copyright
- Giver proper credit for contributions to work – appropriate authorship ICMJE guidelines, CRediT
- Declare competing interests

What is research misconduct? -1


U.S. Department of Health & Human Services

THE OFFICE OF RESEARCH INTEGRITY

Contact Us

Home | About ORI | News & Events | Research Misconduct | RCR Resources | Programs

Home » Definition of Research Misconduct

Printer Friendly

Definition of Research Misconduct

Research misconduct means fabrication, falsification, or plagiarism in proposing, performing, or reviewing research, or in reporting research results.

(a) Fabrication is making up data or results and recording or reporting them.

(b) Falsification is manipulating research materials, equipment, or processes, or changing or omitting data or results such that the research is not accurately represented in the research record.

(c) Plagiarism is the appropriation of another person's ideas, processes, results, or words without giving appropriate credit.

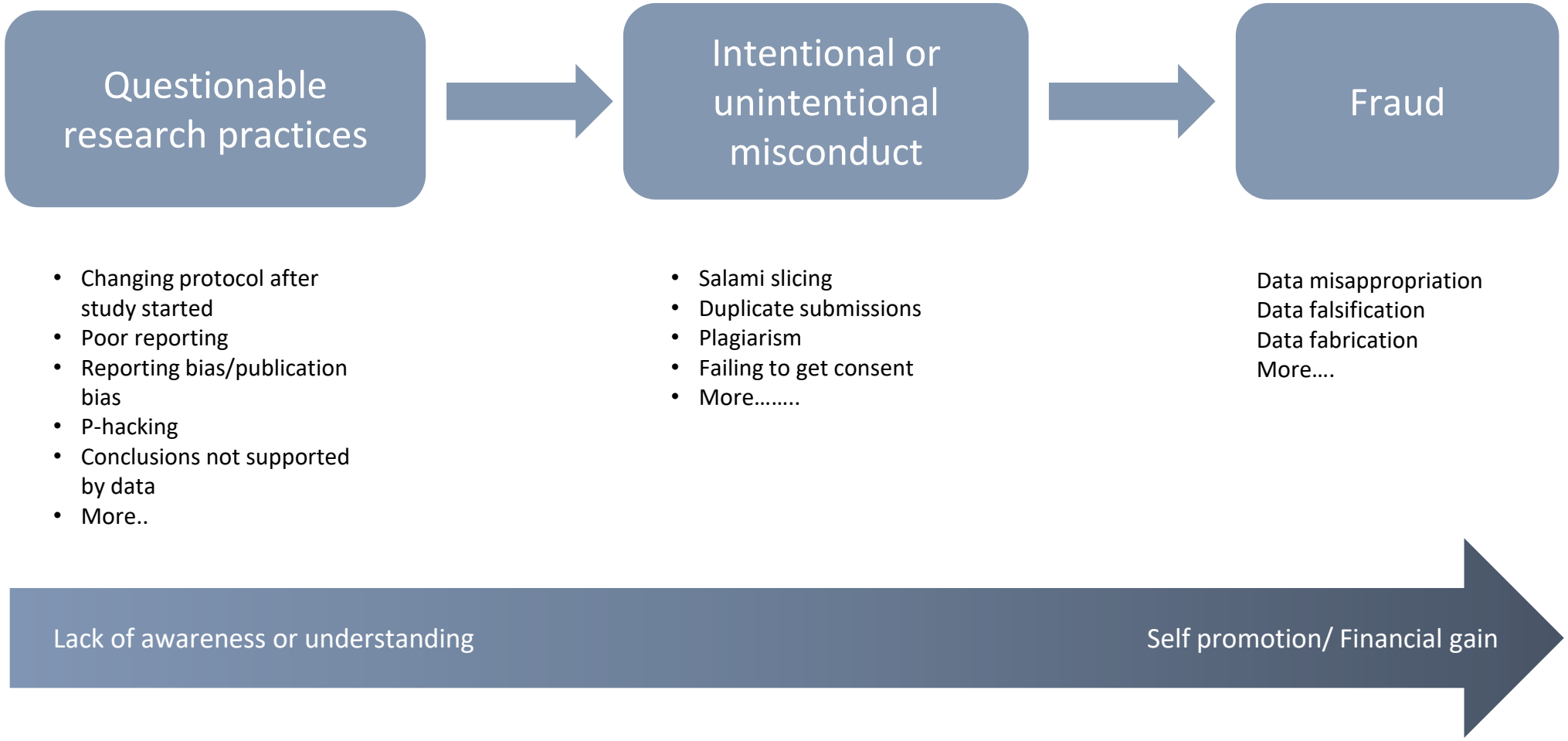
(d) Research misconduct does not include honest error or differences of opinion.

Durham University UK

Fabrication
Falsification
Plagiarism
Misrepresentation
Mismanagement or inadequate preservation of data and/or primary materials
Breach of duty of care
'list is not exhaustive'

Fabrication and falsification includes a range of practices including Image manipulation.

What is research misconduct? -2



What is research misconduct? -3

Unethical conduct of research involving humans and animals

Research can be scientifically sound and accurately reported, but still unethical and constitute research misconduct

- Conducting research without care for the safety and dignity of human participants
- Failing to respect rights to privacy and anonymity

- Inhumane treatment of animals
- Wasteful use of animals

What is research misconduct? -4

Common ethical issues in research involving humans

Inadequate ethics oversight	no ethics committee approval. no or inadequate informed consent to participate in research.

- No consent to publish details about study participants.
- Failing to register clinical trials in a trials registry/failing to stick to the registered protocol.
- Reporting clinical trials as audits to avoid the need for ethics committee approval.
- Reporting audits as clinical trials to over-sell the significance of the results.

What is research misconduct? - 5

Misconduct during the publication process

Researcher questionable practices and misconduct

Duplicate submissions to different journals at the same time
Plagiarism
Salami-slicing
Citation manipulation
Authorship issues – failing to properly acknowledge contributions to the research.
- gift authorship, ghost authorship

Data theft
Failing to declare competing interests

What is research misconduct? -6

Misconduct during the peer review and publication process

Editor questionable practices and misconduct

Many journal editors are experts in their fields, but not professional editors.
Lack of awareness of expected standards and processes.

Don’t know how to manage ethics or integrity concerns
Respond inappropriately (eg by retracting an article) without a fair investigation
Excessive self-publishing
Inadequate peer review (eg not checking peer reviewers)
Failing to declare competing
Handing own manuscripts
Citation manipulation
Using their journal to promote their own product or device

What is research misconduct?

Misconduct during the peer review and publication process

Peer reviewer questionable practices and misconduct

Failing to peer review in a timely manner
Failing to declare completing interests
Delaying or rejecting competitor's manuscripts
Stealing research ideas

Peer review rings
Peer review manipulation (see later slides)

What is research misconduct - summary

Protocol planning	Research process	Writing manuscript	Publication process	Publication
Changing the protocol after starting the study	Data falsification and fabrication Data theft	Authorship issues	Duplicate submission/ redundant publication	Citation manipulation
Failure to respect human safety, rights and dignity	Biased and poor Reporting, QRPs and failing to report ethics oversight	Failure to declare competing interests		
No trial registration	Failure to treat animals humanely	Failure to obtain consent to publish	Failing to share raw data	
		Plagiarism	Salami slicing	

Editor questionable behaviour and misconduct
Peer reviewer questionable behaviour and misconduct, peer review rings and peer review manipulation
Manipulation of the publishing process

*QRP questionable research practices

Organisations supporting medical editors

- For editors of peer reviewed medical journals world-wide
- To improve editorial standards
- Promote professionalism in medical editing
- Encourage research on the principles and practice of medical editing.
- Professional voice in current debates

Recommendations for the Conduct, Reporting, Editing and Publication of Scholarly Work in Medical Journals

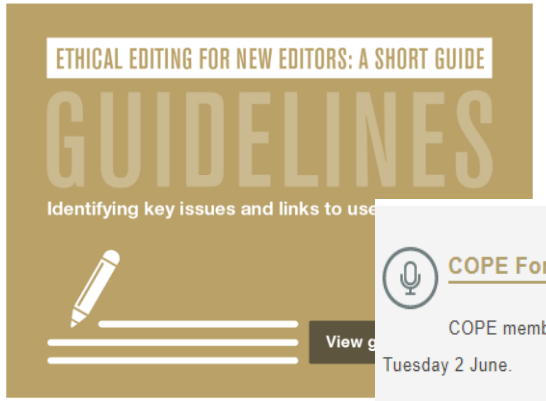
Committee on Publication Ethics

- Leadership in thinking
- Professional voice in current debates
- Sets standards and expectations
- Sets processes to manage suspected misconduct
- Provides guidance and training
- Provides a forum to discuss cases

https://publicationethics.org/

Our core practices

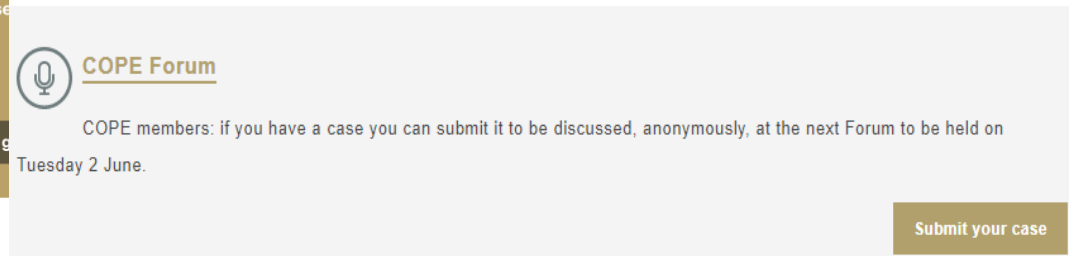
- Allegations of misconduct
- Authorship and contributorship
- Complaints and appeals
- Conflicts of interest
- Data and reproducibility
- Ethical oversight
- Intellectual property
- Journal management
- Peer review processes
- Post-publication discussions



COPE flowcharts

All Flowcharts

Allegations of misconduct
Authorship and contributorship
Complaints and appeals
Conflicts of interest / Competing interests
Data and reproducibility
Ethical oversight
Intellectual property
Journal management
Peer review processes
Post-publication discussions and corrections
View web version
Download PDF



The culture of scientific research

58% of respondents reported that they were aware of scientists feeling tempted or under pressure to compromise on research integrity and standards.

26% had themselves felt tempted or under pressure to compromise on research integrity.

Suggested causes include high levels of competition on science and the pressure to publish

High levels of competition when applying for jobs. promotions and funding.

1-2% of scientists admit to having falsified, fabricated or modified data at least once

Univerisities UK concordat

Universities UK, together with signatories to the concordat including UK Research & Innovation and Wellcome Trust, has reaffirmed its pledge to the revised concordat to support research integrity to further assure government, business, international partners and the public that they can continue to have confidence in UK research and its world-leading researchers.

"Support a research environment that is underpinned by a culture of integrity based on good governance, best practice and support for the development of researchers."

Summary of commitments

This concordat seeks to provide a comprehensive national framework for good research conduct and its governance. As signatories to and supporters of the concordat to support research integrity, we are committed to:

- maintaining the highest standards of rigour and integrity in all aspects of research
- ensuring that research is conducted according to appropriate ethical, legal and professional frameworks, obligations and standards
- supporting a research environment that is underpinned by a culture of integrity and based on good governance, best practice and support for the development of researchers
- using transparent, robust and fair processes to deal with allegations of research misconduct should they arise
- working together to strengthen the integrity of research and to reviewing progress regularly and openly

The Singapore statement

SINGPORE STATEMENT ON RESEARCH INTEGRITY

Background

The principles and responsil
the first international effort
conduct, with the long-range

The Statement is the produc
who participated in the 2nd
funders, representatives of
publishers. The Statement w
commented upon before, du
global use on 22 September

12. Responding to Irresponsible Research Practices: Research institutions, as well as journals, professional organizations and agencies that have commitments to research, should have procedures for responding to allegations of misconduct and other irresponsible research practices and for protecting those who report such behavior in good faith. When misconduct or other irresponsible research practice is confirmed, appropriate actions should be taken promptly, including correcting the research record.

13. Research Environments: Research institutions should create and sustain environments that encourage integrity through education, clear policies, and reasonable standards for advancement, while fostering work environments that support research integrity.

14. Societal Considerations: Researchers and research institutions should recognize that they have an ethical obligation to weigh societal benefits against risks inherent in their work

What is best practice for editors and publishers and institutions?

Editors and publishers

- Policies and tools that support reproducibility (e.g. TOP guidelines)
- Polices, standards, processes and practices to prevent research misconduct
  - Guidance, training, tools and resources for authors, peer reviewers and editors
  - Screening to detect misconduct
- Processes to manage and act on suspected misconduct*.

Institutions

- Guidance, training and support for researchers (to support reproducibility)
- Polices, standards, processes and practices to prevent research misconduct
  - (e.g change the pressure to publish culture)
- Processes to manage and act on suspected misconduct*.

*Collaboration

Collaboration between journals and institutions

Journals should:

- publish the contact details of their editor-in-chief who should act as the point of contact for questions relating to research and publication integrity;
- inform institutions if they suspect misconduct by their researchers, and provide evidence to support these concerns;
- cooperate with investigations and respond to institutions' questions about misconduct allegations;
- be prepared to issue retractions or corrections (according to the COPE guidelines on retractions) when provided with findings of misconduct arising from investigations;
- have policies for responding to institutions and other organizations that investigate cases of research misconduct

Institutions should:

- have a research integrity officer (or office) and publish their contact details prominently;
- inform journals about cases of proven misconduct that affect the reliability or attribution of work that they have published;
- respond to journals if they request information about issues, such as disputed authorship, misleading reporting, competing interests, or other factors, including honest errors, that could affect the reliability of published work;
- initiate inquiries into allegations of research misconduct or unacceptable publication practice raised by journals;
- have policies supporting responsible research conduct and systems in place for investigating suspected research misconduct.

What are the reasons for misconduct?

What's the prevalence of research misconduct?

Difficult to study

- Broad definition
- No-one wants to admit to it

Can surrogate markers like retractions be used?

Retractions

- No consistency in their use – honest mistakes as well as misconduct
- No consistency in their wording – reason given in wording may not be real reason for retraction.
- Number of retractions is rising – but due to more awareness and willingness to retract.

The STM report, An overview of scientific and scholarly publishing, 5th Edition 2018

"The number of journal article retractions has grown substantially in the last decade, but the consensus opinion is that this is more likely due to increased awareness rather than to increasing misconduct. "

Rob Johnson, Anthony Watkinson CIBER, Michael Mabe

What's the prevalence of research misconduct?

Data from surveys

How Many Scientists Fabricate and Falsify Research? A Systematic Review and Meta-Analysis of Survey Data

1.97% (N = 7, 95%CI: 0.86–4.45) of scientists admitted to have fabricated, falsified or modified data or results at least once.
Up to **33.7%** admitted other questionable research practices.

When asked about falsification and questionable behaviour in colleagues
14.12% (N = 12, 95% CI: 9.91–19.72) for falsification
72% for other questionable research practices.

D Fanelli 2009

New types of misconduct

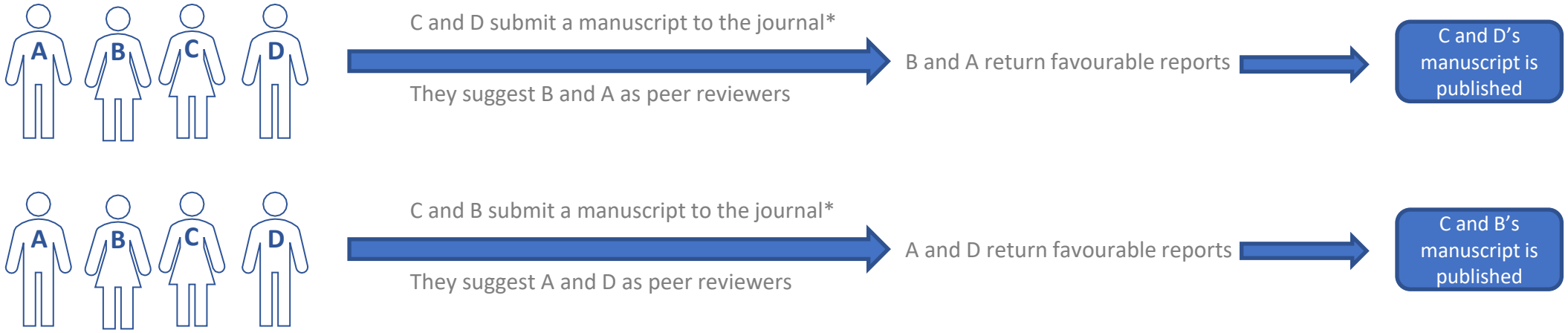
Predatory practices affecting journals and publishers

- Peer review manipulation
- Systematic manipulation of the publication process
- Predatory journals

Peer review manipulation

Peer review rings

A group of researchers agree to peer review for each other.



Motivation

- Self promotion

Exploitation of

- Online submission systems
- Option to suggest peer reviewers
- Busy editors
- Shortage of peer reviewers

See also peer review manipulation as part of systematic manipulation of the publication process

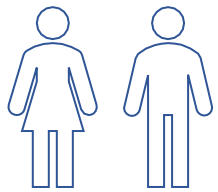
Systematic manipulation of the publication process

An individual or group (usually at an institution)

Disreputable Editing agency

Predatory conference

Researchers are approached with an offer of authorship or guarantee of publication.



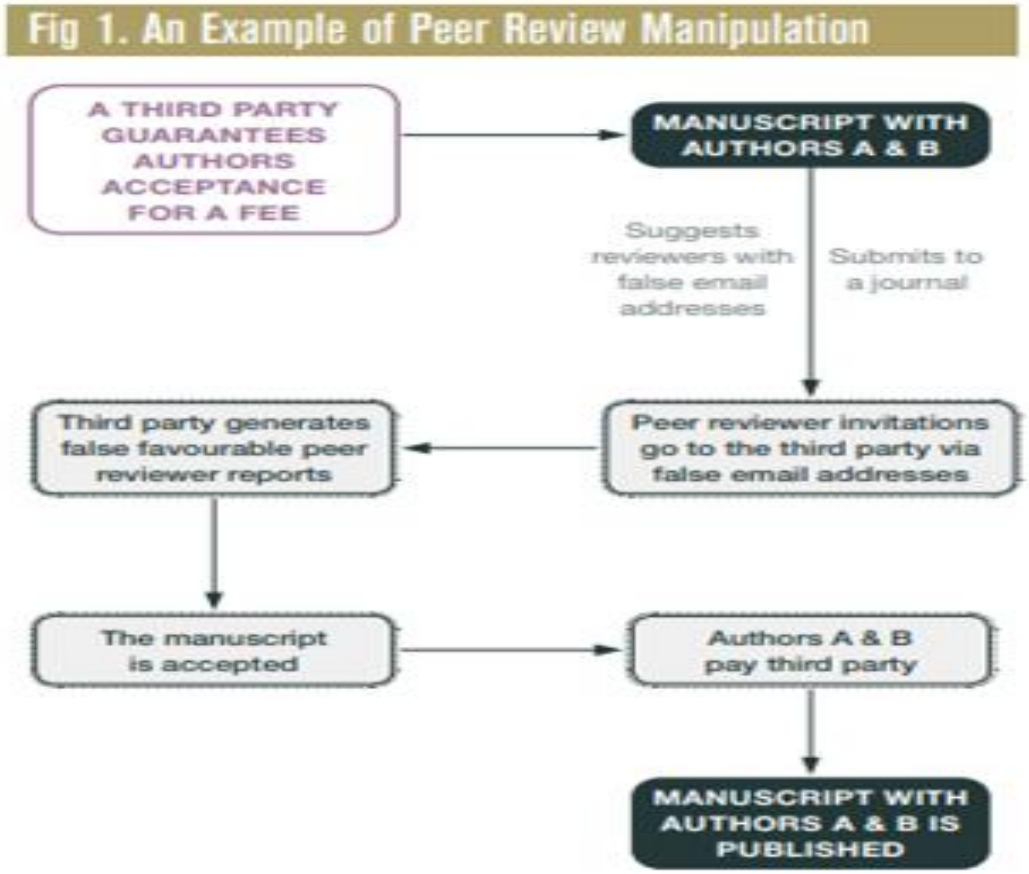
Agree on guaranteed publication in exchange for a fee.

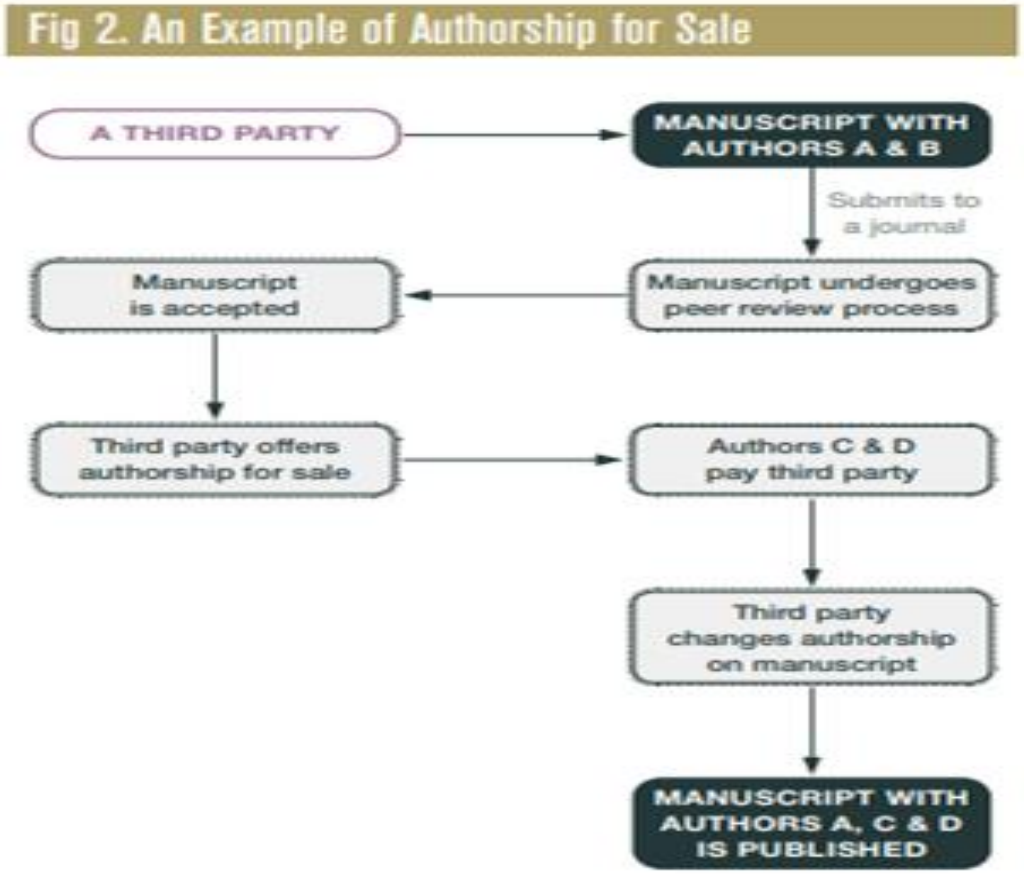
Manipulate peer review and/ or authorship

Achieve publication

Collect fee

Systematic manipulation of the publication process





From COPE guidelines – What to do if you suspect systematic manipulation of the publication process.

Predatory journals

Definition

"Predatory journals and publishers are entities that prioritize self-interest at the expense of scholarship and are characterized by false or misleading information, deviation from best editorial and publication practices, a lack of transparency, and/or the use of aggressive and indiscriminate solicitation practices."

Agnes Grudniewicz, David Moher, Kelly D. Cobey et al. *Nature* **576**, 210-212 (2019)
doi: 10.1038/d41586-019-03759-y

Salient characteristics of potential predatory journals.

1.	The scope of interest includes non-biomedical subjects alongside biomedical topics
2.	The website contains spelling and grammar errors
3.	Images are distorted/fuzzy, intended to look like something they are not, or which are unauthorized
4.	The homepage language targets authors
5.	The Index Copernicus Value is promoted on the website
6.	Description of the manuscript handling process is lacking
7.	Manuscripts are requested to be submitted via email
8.	Rapid publication is promised
9.	There is no retraction policy
10.	Information on whether and how journal content will be digitally preserved is absent
11.	The Article processing/publication charge is very low (e.g., < $150 USD)
12.	Journals claiming to be open access either retain copyright of published research or fail to mention copyright
13.	The contact email address is non-professional and non-journal affiliated (e.g., @gmail.com or @yahoo.com)

Shamseer, L., Moher, D., Maduekwe, O. *et al.* Potential predatory and legitimate biomedical journals: can you tell the difference? A cross-sectional comparison. *BMC Med* **15,** 28 (2017). https://doi.org/10.1186/s12916-017-0785-9

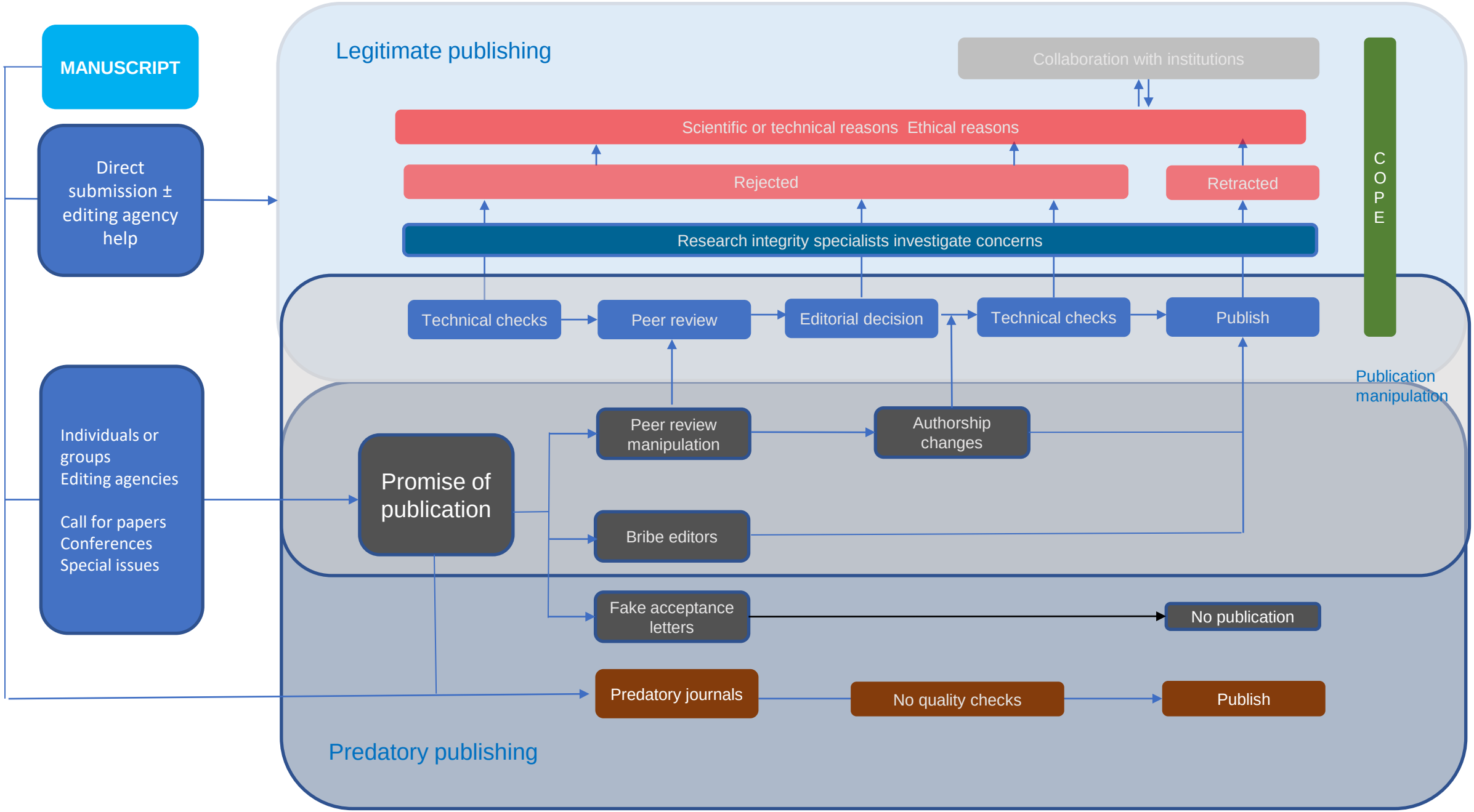
Think check submit

Contributing organizations:

- Committee on Publication Ethics (COPE)
- Directory of Open Access Journals (DOAJ)
- INASP
- Ligue des Bibliothèques Européennes de Recherche – Association of European Research Libraries (LIBER)
- Open Access Publishing in European Networks (OAPEN)
- Open Access Scholarly Publishers Association (OASPA)
- International Association of STM Publishers (STM)
- UKSG

Reference this list for your chosen journal to check if it is trusted.

- Do you or your colleagues know the journal?
  – Have you read any articles in the journal before?
  – Is it easy to discover the latest papers in the journal?
- Can you easily identify and contact the publisher?
  – Is the publisher name clearly displayed on the journal website?
  – Can you contact the publisher by telephone, email, and post?
- Is the journal clear about the type of peer review it uses?
- Are articles indexed in services that you use?
- Is it clear what fees will be charged?
  – Does the journal site explain what these fees are for and when they will be charged?
- Do you recognise the editorial board?
  – Have you heard of the editorial board members?
  – Do the editorial board mention the journal on their own websites?
- Is the publisher a member of a recognized industry initiative?
  – Do they belong to the Committee on Publication Ethics (COPE) ?
  – If the journal is open access, is it listed in the Directory of Open Access Journals (DOAJ) ?
  – If the journal is open access, does the publisher belong to the Open Access Scholarly Publishers' Association (OASPA) ?
  – Is the journal hosted on one of INASP's Journals Online platforms (for journals published in Bangladesh, Nepal, Sri Lanka, Central America and Mongolia) or on African Journals Online (AJOL, for African journals)?
  – Is the publisher a member of another trade association?


MANUSCRIPT
Direct submission ± editing agency help
Individuals or groups
Editing agencies
Call for papers
Conferences
Special issues
Legitimate publishing
Collaboration with institutions
Scientific or technical reasons Ethical reasons
Rejected
Retracted
COPE
Research integrity specialists investigate concerns
Technical checks
Peer review
Editorial decision
Technical checks
Publish
Publication manipulation
Promise of publication
Peer review manipulation
Authorship changes
Bribe editors
Fake acceptance letters
No publication
Predatory journals
No quality checks
Publish
Predatory publishing

Pre-prints

Version of a scientific paper is deposited in a repository before publication in a peer-reviewed journal.

Open for community to comment on the research.
Some have been established for many years (Physics arXiv, Life sciences –BioarXiv).

Becoming more common. Collaboration with institutions and publishers.

> BMJ with Yale University and Cold Spring Harbor Laboratory launch MedRxiv for clinical research.
> Springer Nature with Research Square - In Review to allow community feedback and journal peer review at the same time.

eLife Covid 19 response – default deposition in BioarXiv or MedRxiv to allow faster dissemination of research.

Pre-prints – citable and given DOIs.

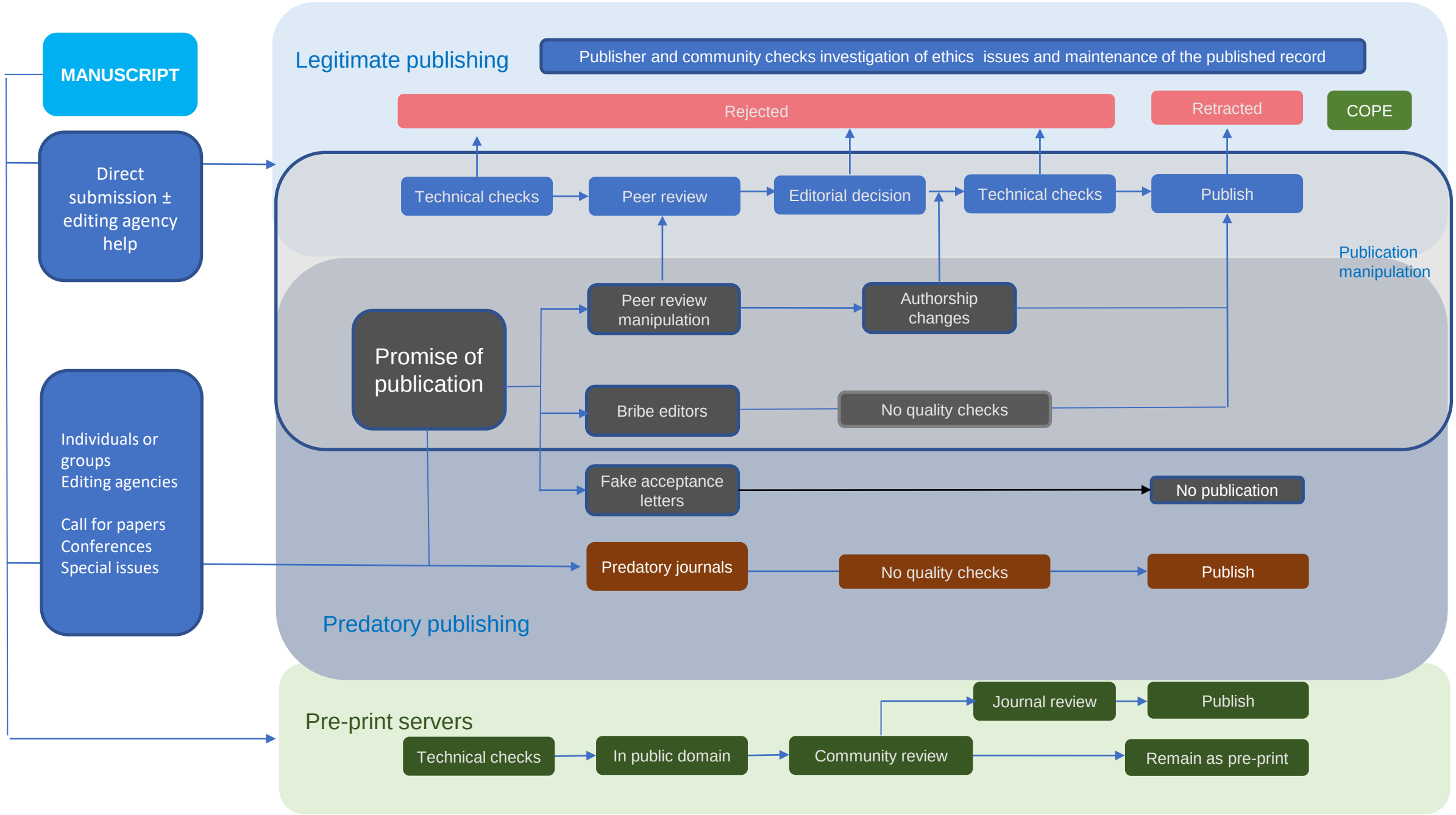
Pre-prints – pros and cons

Pros

- Research disseminated quickly (eg Covid research)
- Authors get feedback from community (not just two reviewers)
- Author can get recognition for depositing in a pre-print
- Authors can stake a claim on their research

Cons

- Research is not peer reviewed in the formal sense
- Difficult to distinguish peer-reviewed from not peer-reviewed
- Unclear who is accountable for managing misconduct (ie no editor)
- What happens to the principle of ‘permanence’?
- Concerns about being ‘scooped’


MANUSCRIPT
Direct submission ± editing agency help
Individuals or groups
Editing agencies
Call for papers
Conferences
Special issues
Legitimate publishing
Publisher and community checks investigation of ethics issues and maintenance of the published record
Rejected
Retracted
COPE
Technical checks
Peer review
Editorial decision
Technical checks
Publish
Publication manipulation
Promise of publication
Peer review manipulation
Authorship changes
Bribe editors
No quality checks
Fake acceptance letters
No publication
Predatory journals
No quality checks
Publish
Predatory publishing
Pre-print servers
Technical checks
In public domain
Community review
Journal review
Publish
Remain as pre-print

Pre-prints – pros and cons

Pros

- Research disseminated quickly (eg Covid research)
- Authors get feedback from community (not just two reviewers)
- Author can get recognition for depositing in a pre-print
- Authors can stake a claim on their research

As pre-prints allow authors to disseminate work directly, incentives for predatory practices might disappear.

Cons

- Research is not peer reviewed in the formal sense
- Difficult to distinguish peer-reviewed from not peer-reviewed
- Unclear who is accountable for managing misconduct (ie no editor)
- What happens to the principle of 'permanence'?
- Concerns about being 'scooped'

There will be more information of varying soundness and quality in the public domain.

Role of librarians and information management specialists will become increasingly important.

To watch in the future

More open access

More ‘classic’ research integrity issues – the volume will increase

Legal issues

“Are legal concerns stifling scientific debate” THE by Jack Grove

On the one hand there is the argument that legal threats are preventing debate and are being used to stifle criticism.

On the other hand there is an argument that retractions are still happening because misconduct is taken very seriously and journals and publishers are still doing the right thing - which is maintaining the record not punishing researchers.

Artificial intelligence

To search the literature
To streamline workflows screen submissions
To peer review
To help researchers find a journal
To help journals to find content

What standards are used to teach AI?
Who is accountable when AI gets it wrong?

Conclusion- what can we do?

Prioritise and invest in research integrity

- Raise awareness
- Change the culture to reward best practice
- Train and support
- Collaborate – publishers, journals, institutions, libraries, funders globally
- Do more research
- Pre-empt issues

In the meantime, reader beware.

References and further reading

Slide 2
The Committee on Publication Ethics: https://publicationethics.org/
Maverick publishing specialists:http://www.maverick-os.com/

Slide 5
What is research integrity?
NIH Central Resource for Grants and Funding information
https://grants.nih.gov/policy/research_integrity/what-is.htm

Slide 7
Reproducibility and replicability in science: https://www.nap.edu/read/25303/chapter/6
Is there a reproducibility crisis?: https://www.nature.com/articles/d41586-019-00067-3
Nature journal reproducibility survey**:** https://media.nature.com/original/magazine-assets/d41586-018-04590-7/15675426

Slide 8
Equator network: https://www.equator-network.org/
Principles and Guidelines for Reporting Preclinical Research:
https://www.nih.gov/research-training/rigor-reproducibility/principles-guidelines-reporting-preclinical-research

Slide 9
Center for Open Science. The TOP Guidelines:https://cos.io/top/

Slide 10
Clinical trial registries
The WHO:https://www.who.int/ictrp/trial_reg/en/
ISRCTN: https://www.isrctn.com/

The Helsinki Declartion: Helsinki Declaration
ICMJE guidelines: http://www.icmje.org/recommendations/browse/roles-and-responsibilities/defining-the-role-of-authors-and-contributors.html
CRediT: https://onlinelibrary.wiley.com/doi/full/10.1002/leap.1210

References and further reading

Slide 11
What is research misconduct: https://ori.hhs.gov/definition-misconduct
University of Durham UK, definition of research misconduct: https://www.dur.ac.uk/research.innovation/governance/policy/integrity/misconduct/

Slide 12
Questionable practices
Measuring the Prevalence of Questionable Research Practices With Incentives for Truth Telling - Leslie K. John, George Loewenstein, Drazen Prelec, 2012
https://www.frontiersin.org/articles/10.3389/fpsyg.2015.00535/full
https://replicationindex.com/tag/scientific-misconduct/
Gerrits RG, Jansen T, Mulyanto J*, et al. BMJ Open* 2019;**9:**e027903.

Slide 19
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Thank you

Questions?

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