
Research integrity during the COVID-19 pandemic

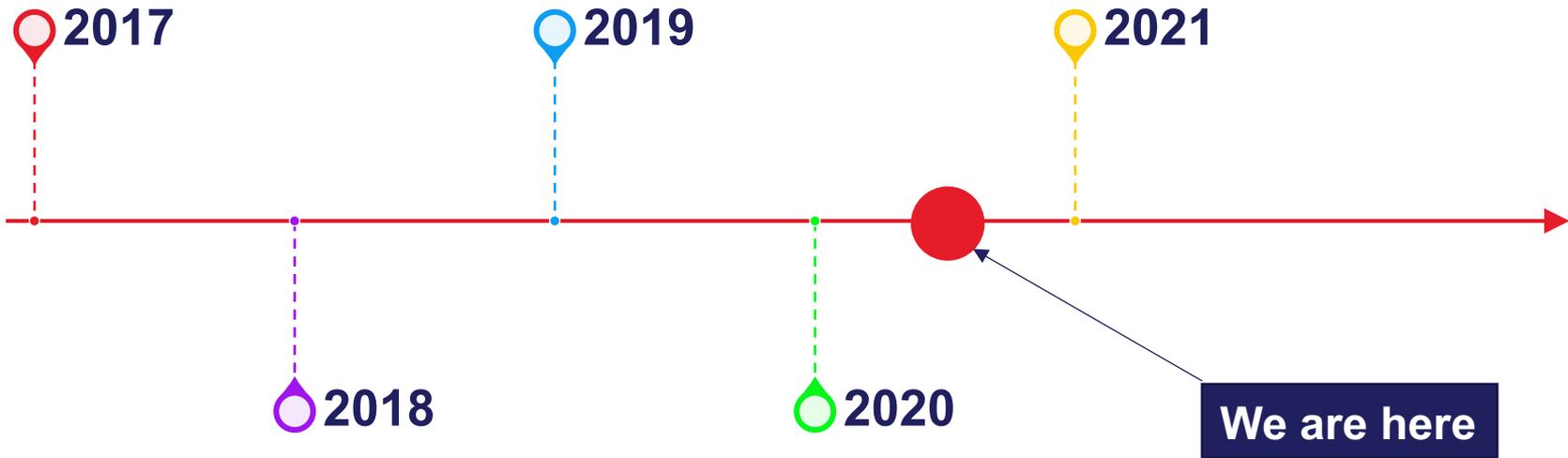
Dr Daniel Barr
Principal Research Integrity Advisor
Research and Innovation
daniel.barr@rmit.edu.au

What's next...





Past, present and future



What is research integrity and why is it important?

What's next...

Research impact and trust



Research generates and organises knowledge by the systematic investigation and study of materials and sources



The value and positive impact of research is dependent on trust



Upholding the principles of research integrity make research trustworthy



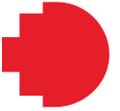
A definition of research integrity

Research integrity is the coherent and consistent adherence to a set of principles that are characteristic of responsible and ethical research and that underpin the trustworthiness of research.

What's next...



The Australian Code for the Responsible Conduct of Research





Principles of responsible research conduct

The principles (P1–P8) that are the hallmarks of responsible research conduct are:

P1 Honesty in the development, undertaking and reporting of research

- Present information truthfully and accurately in proposing, conducting and reporting research

P2 Rigour in the development, undertaking and reporting of research

- Underpin research by attention to detail and robust methodology, avoiding or acknowledging biases.

P3 Transparency in declaring interests and reporting research methodology, data and findings

- Share and communicate research methodology, data and findings openly, responsibly and accurately.
- Disclose and manage conflicts of interest.

P4 Fairness in the treatment of others

- Treat fellow researchers and others involved in the research fairly and with respect.
- Appropriately reference and cite the work of others.
- Give credit, including authorship where appropriate, to those who have contributed to the research.

P5 Respect for research participants, the wider community, animals and the environment

- Treat human participants and communities that are affected by the research with care and respect, giving appropriate consideration to the needs of minority groups or vulnerable people
- Ensure that respect underpins all decisions and actions related to the care and use of animals in research.
- Minimise adverse effects of the research on the environment.

P6 Recognition of the right of Aboriginal and Torres Strait Islander peoples to be engaged in research that affects or is of particular significance to them

- Recognise, value and respect the diversity, heritage, knowledge, cultural property and connection to land of Aboriginal and Torres Strait Islander peoples.
- Engage with Aboriginal and Torres Strait Islander peoples prior to research being undertaken, so that they freely make decisions about their involvement.
- Report to Aboriginal and Torres Strait Islander peoples the outcomes of research in which they have engaged.

P7 Accountability for the development, undertaking and reporting of research

- Comply with relevant legislation, policies and guidelines.
- Ensure good stewardship of public resources used to conduct research.
- Consider the consequences and outcomes of research prior to its communication.

P8 Promotion of responsible research practices

- Promote and foster a research culture and environment that supports the responsible conduct of research.



The principles of research integrity are translated into practice by humans (researchers) working in a complex system of expectations (responsibilities) and traditions

- Level of experience
- Personality traits
- Conventions followed by research disciplines
- Research environment where research is conducted

Questionable
Research Practices

Honesty
Rigour
Transparency
Fairness
Respect
Recognition
Accountability
Promotion

Breach of
research integrity

Serious Breach of
research integrity



Excellent

Responsible

Questionable

Irresponsible

Poor



Variation in translation of the principles of research integrity into research practice

Questionable
Research Practices

- Honesty
- Rigour
- Transparency
- Fairness
- Respect
- Recognition
- Accountability
- Promotion

Breach of
research integrity

Serious Breach of
research integrity



33 – 72%

2 – 14%

Excellent

Responsible

Questionable

Irresponsible

Poor



Variation in translation of the principles of research integrity into research practice



Why is research integrity important?



Upholding the principles of research integrity makes research trustworthy



Research integrity is the foundation for research excellence



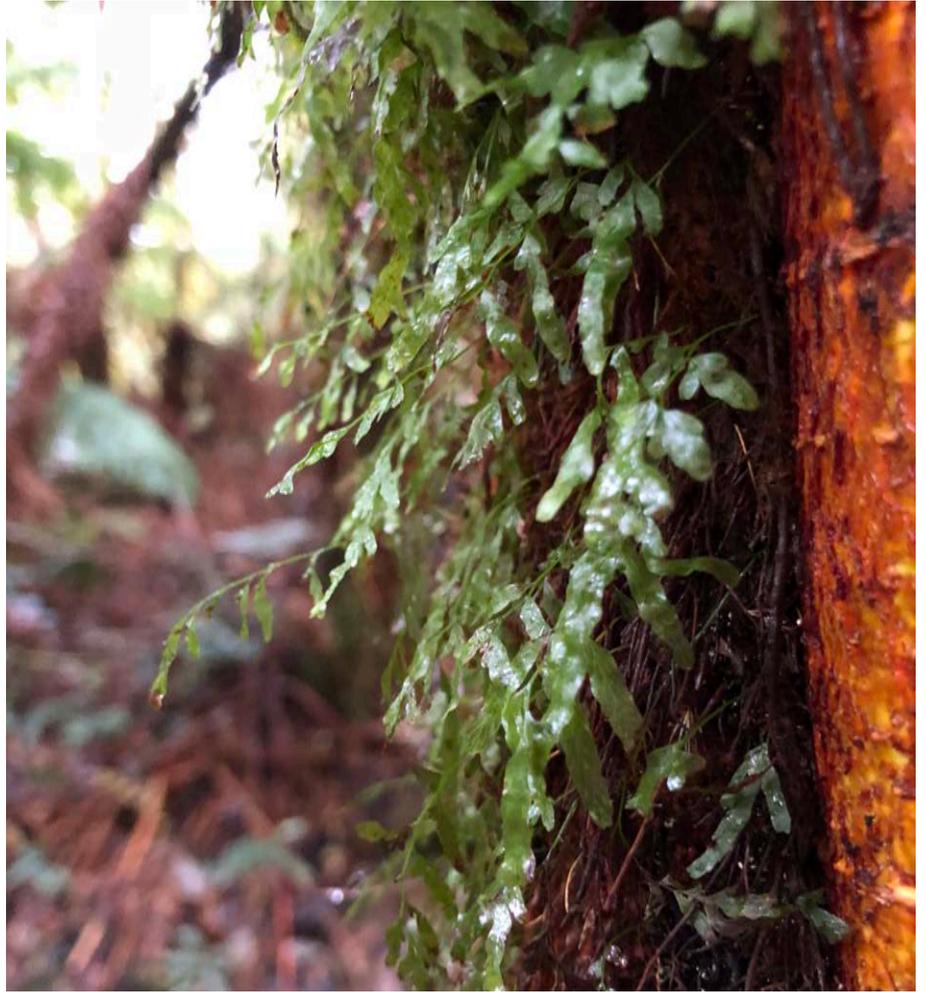
Research integrity allows us to recognize and address the entire spectrum of research practice including breaches



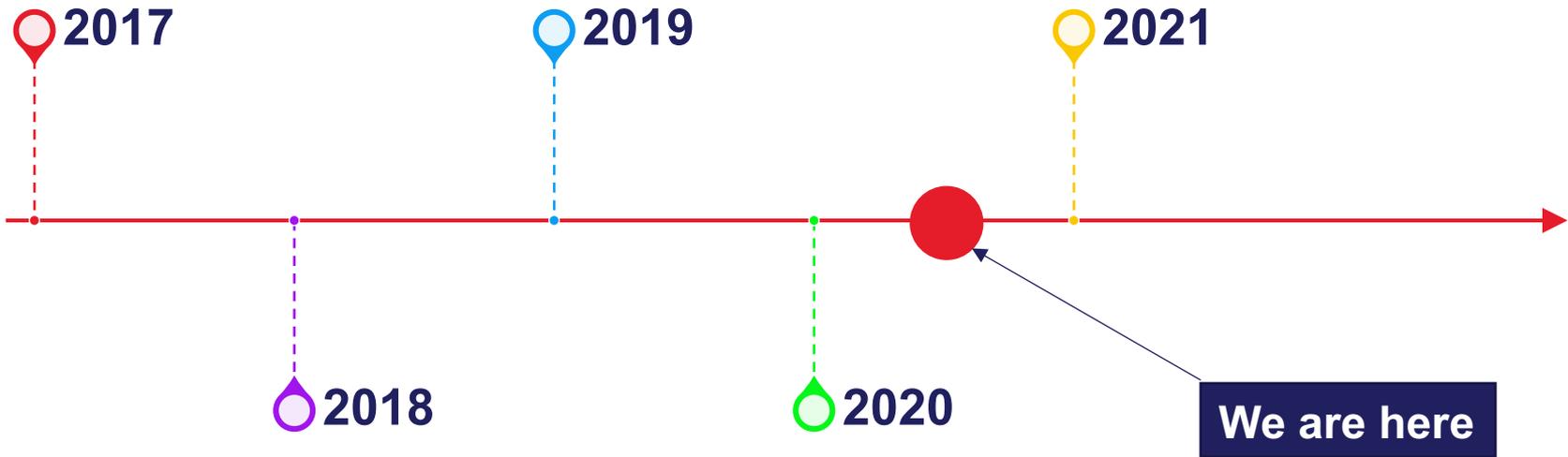
Ensures the positive impact of research and mitigates diverse risks



Enables public trust and social licence



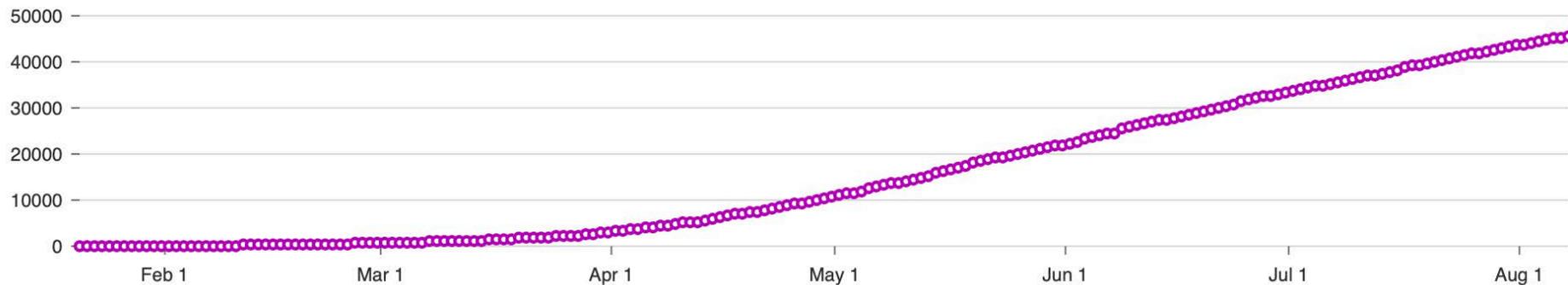
Past, present and future



Research communicated about COVID-19

Jan 21, 2020 - Aug 8, 2020

1644 New in the Past 7 Days | 45727 Cumulative Papers



covid19primer.com/dashboard



Research integrity during a pandemic

What are the needs for trustworthy research?

How have research practices changed?

Are the principles of research integrity the same?

What are the challenges for ensuring research integrity?

How might we solve these challenges?





Andrew Greentree
Catherine Gomes
Alemayehu Molla
RMIT's RIA Network
Anita Arndt
Chloe Patton
David Blades
Jessica Keath
Stephanie Morrison-Duff
Robyn Barnacle
Gary Pearce
Nicholas Smale

**RMIT Researchers
and Research
Integrity Advisors**

**Experts in Research
Management, Integrity
and Ethics**

**Experts in
Graduate Research**

**Experts in
Research Data**



RITE BITES interviews

Prof Andy Greentree from RMIT Physics - [Link to Video on Stream](#)

A/Prof Cat Gomes from RMIT Media and Communications - [Link to Video on Stream](#)

Mr Nick Smale from RMIT Vietnam - [Link to Video on Stream](#)

Prof Sergio Litewka from University of Miami - [Link to Video on Stream](#)

Prof Michael Kalichman from UCSD - [Link to Video on Stream](#)

Ms Zoë Hammatt from University of Hawaii

Ms Susan Zimmerman from Secretariat on Responsible Conduct of Research Canada

What are the challenges for research integrity during the COVID-19 pandemic?



RITE BITES interviews – ideas

The principles of research integrity remained crucial and a need for more guidance for researchers

Communication challenges for supervisory teams and relationships, a lack of spontaneous interactions

Urgency means we don't need to spend time thinking about integrity and ethics or that ethics is extra

Over enthusiastic rush to produce writing, peer review and publish

Lack of rigour in rapid research, an increased need for openness and transparency

Pressure and unwellness

Politicization of research

What are the challenges for research integrity during the COVID-19 pandemic?





The principles of research integrity are translated into practice by humans (researchers) working in a complex system of expectations (responsibilities) and traditions

- Level of experience
- Personality traits
- Conventions followed by research disciplines
- Research environment where research is conducted

The COVID-19 pandemic has changed the research environment and introduced new stressors for researchers, institutions, publishers, funders, ...

Questionable
Research Practices

- Honesty
- Rigour
- Transparency
- Fairness
- Respect
- Recognition
- Accountability
- Promotion

Breach of
research integrity

Serious Breach of
research integrity



Excellent

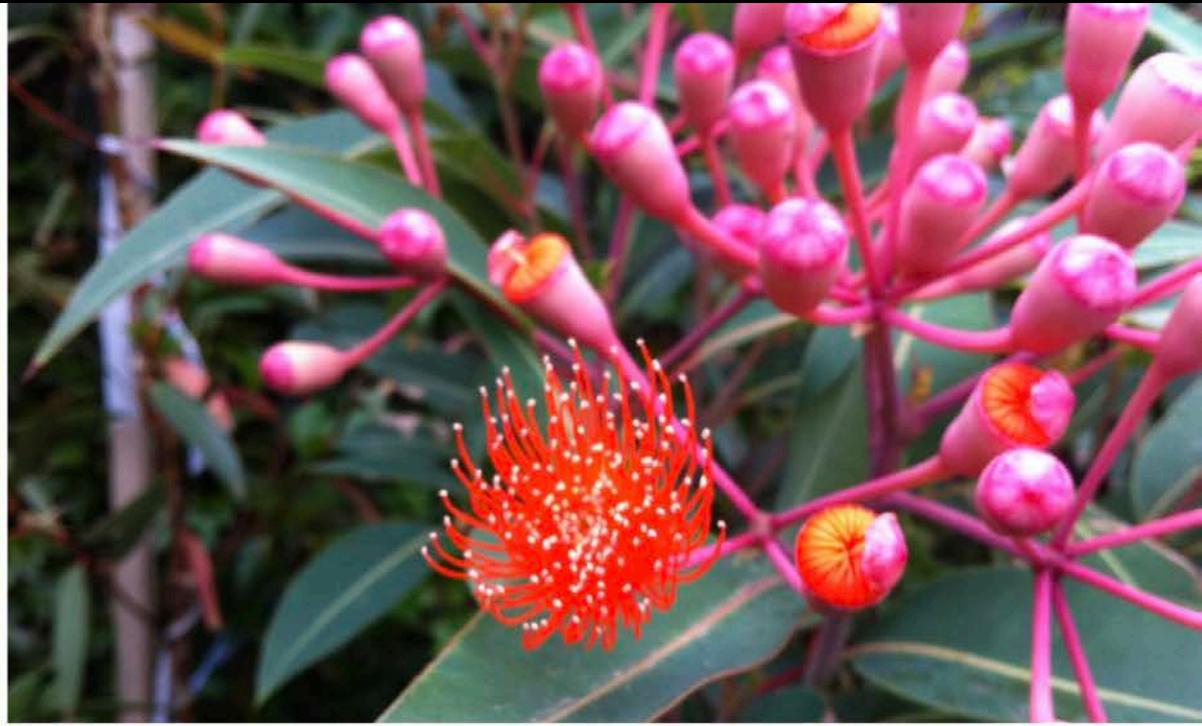
Responsible

Questionable

Irresponsible

Poor

← Variation in translation of the principles of research integrity into research practice →





Solutions (Good ideas)

Guidance and advice on COVID-19 and research integrity for RMIT researchers and other stakeholders

A description of new practices and resources for responsible research and meeting the Australian Code for the Responsible Conduct of Research (2018) during the COVID-19 pandemic

[Researcher Portal Guidance Note](#)

Principles of responsible research conduct

The principles (P1–P8) that are the hallmarks of responsible research conduct are:

- P1 Honesty** in the development, undertaking and reporting of research
- Present information truthfully and accurately in proposing, conducting and reporting research.
- P2 Rigour** in the development, undertaking and reporting of research
- Underpin research by attention to detail and robust methodology, avoiding or acknowledging biases.
- P3 Transparency** in declaring interests and reporting research methodology, data and findings
- Share and communicate research methodology, data and findings openly, responsibly and accurately.
 - Disclose and manage conflicts of interest.
- P4 Fairness** in the treatment of others
- Treat fellow researchers and others involved in the research fairly and with respect.
 - Appropriately reference and cite the work of others.
 - Give credit, including authorship where appropriate, to those who have contributed to the research.
- P5 Respect** for research participants, the wider community, animals and the environment
- Treat human participants and communities that are affected by the research with care and respect, giving appropriate consideration to the needs of minority groups or vulnerable people
 - Ensure that respect underpins all decisions and actions related to the care and use of animals in research.
 - Minimise adverse effects of the research on the environment.
- P6 Recognition** of the right of Aboriginal and Torres Strait Islander peoples to be engaged in research that affects or is of particular significance to them
- Recognise, value and respect the diversity, heritage, knowledge, cultural property and connection to land of Aboriginal and Torres Strait Islander peoples.
 - Engage with Aboriginal and Torres Strait Islander peoples prior to research being undertaken, so that they freely make decisions about their involvement.
 - Report to Aboriginal and Torres Strait Islander peoples the outcomes of research in which they have engaged.
- P7 Accountability** for the development, undertaking and reporting of research
- Comply with relevant legislation, policies and guidelines.
 - Ensure good stewardship of public resources used to conduct research.
 - Consider the consequences and outcomes of research prior to its communication.
- P8 Promotion** of responsible research practices
- Promote and foster a research culture and environment that supports the responsible conduct of research.

Responsibilities of institutions

Responsible research conduct is fostered and underpinned by the research culture of the institution. Institutions have an obligation to encourage and support responsible research conduct. They are accountable to funding organisations and the Australian community for how research is conducted. To foster responsible research conduct, institutions will:

- R1** Establish and maintain good governance and management practices for responsible research conduct.
- R2** Identify and comply with relevant laws, regulations, guidelines and policies related to the conduct of research.
- R3** Develop and maintain the currency and ready availability of a suite of policies and procedures which ensure that institutional practices are consistent with the principles and responsibilities of the Code.
- R4** Provide ongoing training and education that promotes and supports responsible research conduct for all researchers and those in other relevant roles.
- R5** Ensure supervisors of research trainees have the appropriate skills, qualifications and resources.
- R6** Identify and train Research Integrity Advisors who assist in the promotion and fostering of responsible research conduct and provide advice to those with concerns about potential breaches of the Code.
- R7** Support the responsible dissemination of research findings. Where necessary, take action to correct the record in a timely manner.
- R8** Provide access to facilities for the safe and secure storage and management of research data, records and primary materials and, where possible and appropriate, allow access and reference.
- R9** Facilitate the prevention and detection of potential breaches of the Code.
- R10** Provide mechanisms to receive concerns or complaints about potential breaches of the Code. Investigate and resolve potential breaches of the Code.
- R11** Ensure that the process for managing and investigating concerns or complaints about potential breaches of the Code is timely, effective and in accord with procedural fairness.
- R12** Support the welfare of all parties involved in an investigation of a potential breach of the Code.
- R13** Base findings of investigations on the balance of probabilities and ensure any actions are commensurate with the seriousness of the breach.

Responsibilities of researchers

Researchers will uphold the principles of responsible research conduct in all aspects of their research. To this end, researchers will:

- R14** Support a culture of responsible research conduct at their institution and in their field of practice.
- R15** Provide guidance and mentorship on responsible research conduct to other researchers or research trainees under their supervision and, where appropriate, monitor their conduct.
- R16** Undertake and promote education and training in responsible research conduct.
- R17** Comply with the relevant laws, regulations, disciplinary standards, ethics guidelines and institutional policies related to responsible research conduct. Ensure that appropriate approvals are obtained prior to the commencement of research, and that conditions of any approvals are adhered to during the course of research.
- R18** Ensure that the ethics principles of research merit and integrity, justice, beneficence and respect are applied to human research.
- R19** Engage with Aboriginal and Torres Strait Islander peoples and respect their legal rights and local laws, customs and protocols.
- R20** Ensure that the 3Rs (Replacement, Reduction and Refinement) are considered at all stages of research involving animals and minimise the impacts on animals used in research and in so doing support the welfare and wellbeing of these animals.
- R21** Adopt methods appropriate to the aims of the research and ensure that conclusions are justified by the results.
- R22** Retain clear, accurate, secure and complete records of all research including research data and primary materials. Where possible and appropriate, allow access and reference to these by interested parties.
- R23** Disseminate research findings responsibly, accurately and broadly. Where necessary, take action to correct the record in a timely manner.
- R24** Disclose and manage actual, potential or perceived conflicts of interest.
- R25** Ensure that authors of research outputs are all those, and only those, who have made a significant intellectual or scholarly contribution to the research and its output, and that they agree to be listed as an author.
- R26** Acknowledge those who have contributed to the research.
- R27** Cite and acknowledge other relevant work appropriately and accurately.
- R28** Participate in peer review in a way that is fair, rigorous and timely and maintains the confidentiality of the content.
- R29** Report suspected breaches of the Code to the relevant institution and/or authority.

What's next...



Governance of research integrity

The expectation that your research is trustworthy and meets the principles of the Australian Code is **unchanged** by the COVID-19 pandemic

Given the changes and new stressors introduced by the COVID-19 pandemic, the principles and responsibilities described by the Australian Code and its supporting guides are perhaps more important now than ever

Conducting COVIDSafe Research

RMIT has developed a COVIDSafe Plan which outlines the principles, protocols and actions that will guide the safe transition of learning, research and work to campus.

Adherence with the COVIDSafe Plan will prevent the spread of COVID-19 infection.

Please review and implement RMIT COVIDSafe Plan as appropriate and required for your research.

[RMIT WorkLife – COVIDSafe Plan](#)



Changing research directions including pathways for ethical research

Physical distancing measures and other restrictions have meant that some research methods and approaches are significantly changed

The substitution or modification of research methods requires careful thought and practice around responsible research, including to amend existing ethics approvals

Guidance Note on COVID-19 and Human Research Ethics [[Researcher Portal](#)]

Guidance Note on COVID-19 and Animal Research Ethics [[Researcher Portal](#)]



Ethics and integrity reflexivity

Procedural ethics

- Encourages the incorporation of ethics principles into research
- Cannot hope to capture all 'ethical risk' that a research project might carry or present

Ethics in practice

- Decisions 'on the fly', may not seem like *red-letter dilemmas* but can still be significant
- Cannot be predicted

“the researcher should constantly take stock of their actions and their role in the research process and subject those to the same critical scrutiny as the rest of their data”

Guillemin and Gillam



Rigour, robustness and reproducibility

In accordance with the Australian Code, researchers at RMIT will

‘Underpin research by attention to detail and robust methodology, avoiding or acknowledging biases’, and,

‘Adopt methods appropriate to the aims of the research and ensure that conclusions are justified by the results.’

International reporting guidelines developed for various study types relevant for COVID-19-related research can help you to design research and meet these responsibilities - **EQUATOR**

Open research practices including the registering of your research plans to enable the peer review of your proposed methodologies ahead of conducting work - **[Rapid Registered Reports](#)**



Open and Reproducible Research on Open Science Framework

Ian Sullivan,^{1,2} Alexander DeHaven,¹ and David Mellor¹

¹Center for Open Science, Charlottesville, Virginia

²Corresponding author: ian@cos.io

By implementing more transparent research practices, authors have the opportunity to stand out and showcase work that is more reproducible, easier to build upon and more credible. Scientists gain by making work easier to share and



Current Protocols Essential Laboratory Techniques e32, Volume 18

Published in Wiley Online Library (wileyonlinelibrary.com).

doi: 10.1002/cpet.32

© 2019 John Wiley & Sons, Inc.



Responsible dissemination and sharing

In line with the Australian Code, researchers at RMIT will '*Disseminate research findings responsibly, accurately and broadly.*'

You can rapidly and openly share your research using preprint servers and products

RMIT Figshare

The rapid and open sharing of COVID-19 research data is supported by global funders and publishers



Integrity in rapid data management

In line with the Australian Code, researchers at RMIT will *'Retain clear, accurate, secure and complete records of all research including research data and primary materials. Where possible and appropriate, allow access and reference to these by interested parties.'*

Please create and use a Research Data Management Plan [[Researcher Portal – DMP](#) and [RMIT Library Research Data Management Guide](#)]

Access SpringerNature research data support services, which are available free for COVID-19-related research [[SpringerNature Website](#)]

Use specific guidelines developed for the management, sharing and reuse of research data for COVID-19 research [[RDA Webpage](#) / [PDF 4th Edition](#)]





Preventing breaches may be more important than preventing serious breaches

Bouter et al. *Research Integrity and Peer Review* (2016) 1:17
DOI 10.1186/s41073-016-0024-5

Research Integrity and
Peer Review

RESEARCH

Open Access

Ranking major and minor research misbehaviors: results from a survey among participants of four World Conferences on Research Integrity



Lex M. Bouter^{1,2*}, Joeri Tjink^{2,3}, Nils Axelsen⁴, Brian C. Martinson⁵ and Gerben ter Riet⁶

Abstract

Background: Codes of conduct mainly focus on research misconduct that takes the form of fabrication, falsification, and plagiarism. However, at the aggregate level, lesser forms of research misbehavior may be more important due to their much higher prevalence. Little is known about what the most frequent research misbehaviors are and what their impact is if they occur.

Methods: A survey was conducted among 1353 attendees of international research integrity conferences. They were asked to score 60 research misbehaviors according to their views on and perceptions of the frequency of occurrence, preventability, impact on truth (validity), and impact on trust between scientists on 5-point scales. We expressed the aggregate level impact as the product of frequency scores and truth, trust and preventability scores, respectively. We ranked misbehaviors based on mean scores. Additionally, relevant demographic and professional background

1. Insufficient mentorship or supervision of junior colleagues
2. Inadequate management and storage of research data and records
3. Under reporting of flaws and limitations of study design

TOP 5 RESEARCH MISBEHAVIORS

Biomedicine	N = 601	Natural sciences	N = 119	Social sciences	N = 241	Humanities	N = 109
Insufficiently supervise or mentor junior co-workers	7.02 (3.63)	Insufficiently supervise or mentor junior co-workers	7.72 (4.13)	Insufficiently supervise or mentor junior co-workers	6.95 (3.78)	Insufficiently supervise or mentor junior co-workers	6.76 (3.84)
Choose a clearly inadequate research design or using evidently unsuitable measurement instruments	6.04 (3.16)	Not report clearly relevant details of study methods	6.95 (3.43)	Not publish a valid 'negative' study	6.54 (3.98)	Use published ideas or phrases of others without referencing	6.69 (3.69)
Let own convictions influence the conclusions substantially	5.99 (3.17)	Insufficiently report study flaws and limitations	6.64 (3.41)	Let own convictions influence the conclusions substantially	5.86 (2.95)	Selectively cite to enhance own findings or convictions	6.17 (3.25)
Give insufficient attention to the equipment, skills or expertise which are essential to perform the study	5.64 (3.32)	Let own convictions influence the conclusions substantially	6.38 (3.27)	Choose a clearly inadequate research design or using evidently unsuitable measurement instruments	5.77 (3.38)	Choose a clearly inadequate research design or using evidently unsuitable measurement instruments	6.11 (3.37)
Keep inadequate notes of the research process	5.62 (2.96)	Give insufficient attention to the equipment, skills or expertise which are essential to perform the study	6.26 (3.48)	Give insufficient attention to the equipment, skills or expertise which are essential to perform the study	5.71 (3.3)	Unfairly review papers, grant applications or colleagues applying for promotion	6.03 (4.15)

Remote collaboration, supervision and graduate research

- Rescope HDR research projects and supervisory teams
- Limited opportunities for spontaneous interactions
- Difficulties in the direct monitoring of research
- A tendency for supervisory teams to discuss and review clean data and results
- Potential to miss non-verbal cues
- Support for belonging and wellbeing to HDR candidates and other supervisees



Resources for supervisory teams

Guides for supervisors on using Microsoft Teams, supporting candidates remotely and handling tough conversations [[Researcher Portal](#)]

COVID-19 Candidate Action and Support Plan (HDR-COVID-CASP) [[SGR Website](#) / [PDF Form](#)]

'In a time of uncertainty: supporting belonging and wellbeing for HDR students' a review by RMIT researchers for SGR [[PDF Publication](#)]

'Science-ing from home' articles published in *Nature* journal [here](#) and [here](#) about supervising remotely.



Use trusted resources for data

- [RMIT WorkLife Remote Working](#) provides guidance and tools for staff about working remotely including resources for accessing data.
- Advice on storing research data
[\[Researcher Portal - Storing your research data\]](#)
- **AARNET Cloudstor [\[AARNET Webpage\]](#)**
1TB 'Dropbox-like- storage for all researchers at RMIT
- RMIT Figshare: information [\[Researcher Portal\]](#) and access [\[RMIT Figshare\]](#)
- Australian Code: Data guide [\[NHMRC webpage\]](#)





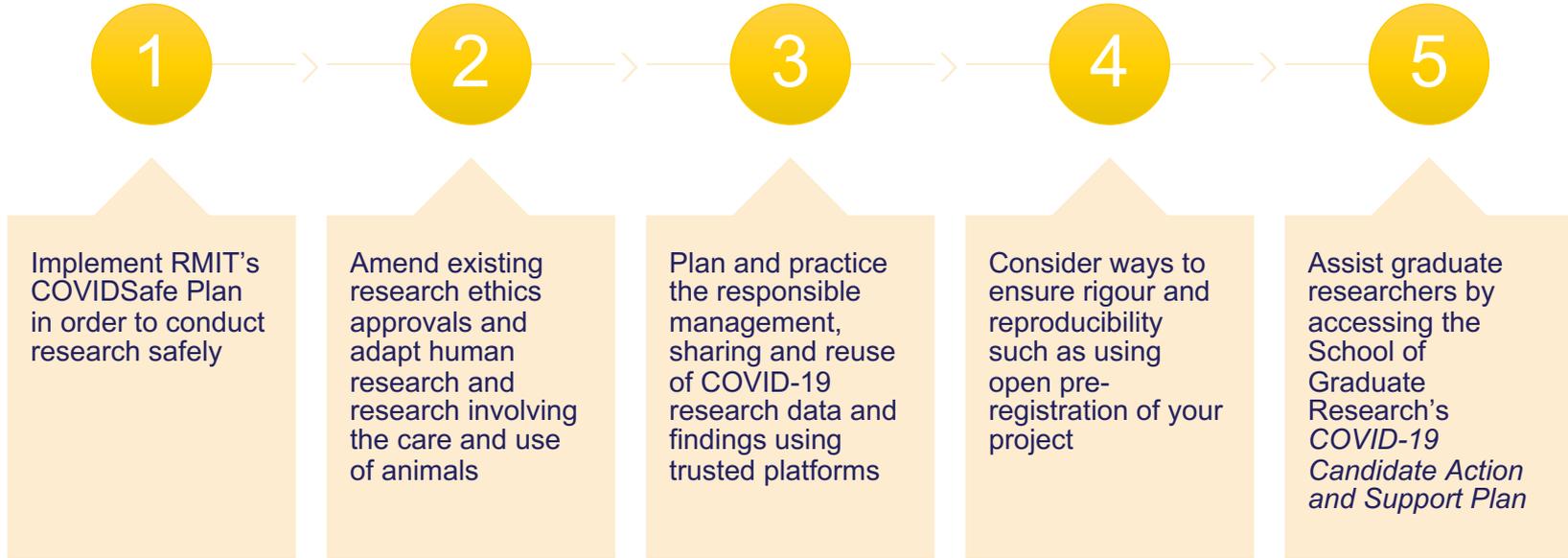
Summary



- Research integrity underpins trustworthiness and impact
- Principles of research integrity include honesty, rigour, transparency, fairness, respect, recognition, accountability and promotion
- The COVID-19 pandemic has changed the research environment and introduced new stressors for researchers, institutions, ...
- The expectation that your research is trustworthy and meets the principles of the Australian Code is **unchanged** by the COVID-19 pandemic
- Planning your research is important / Being willing to reflect on your research as you conduct it is also important
- **How will you meet the principles of the Australian Code for your research?**



Please review your research, if necessary:



Research Integrity Advisors

Need advice about research integrity? Speak to an RIA.

<https://bit.ly/2SpbKyx>

What's next...



Andrew Greentree
Catherine Gomes
Alemayehu Molla
RMIT's RIA Network
Anita Arndt
Chloe Patton
David Blades
Jessica Keath
Stephanie Morrison-Duff
Robyn Barnacle
Gary Pearce
Nicholas Smale

Acknowledgements

Thank you!
Good luck!
Stay safe!

Dr Daniel Barr
daniel.barr@rmit.edu.au

Research Ethics and Integrity team
researchintegrity@rmit.edu.au

What's next...

Key References

Slide 10:

Martinson, B.C., M.S. Anderson, and R. de Vries, Scientists behaving badly. *Nature*, 2005. 435(7043): p. 737-8.

Tijdink, J.K., et al., Personality Traits Are Associated with Research Misbehavior in Dutch Scientists: A Cross-Sectional Study. *PLoS One*, 2016. 11(9): p. e0163251.

Council of Canadian Academies (CCA) and Expert Panel on Research Integrity, Honesty, accountability and trust: fostering research integrity in Canada. 2010, Council of Canadian Academies: Ottawa.

National Academies of Sciences, E. and Medicine, *Fostering Integrity in Research*. 2017, Washington, DC: The National Academies Press. 284.

Fanelli, D., R. Costas, and V. Larivière, Misconduct Policies, Academic Culture and Career Stage, Not Gender or Pressures to Publish, Affect Scientific Integrity. *PLoS One*, 2015. 10(6): p. e0127556.

Begley, C.G., A.M. Buchan, and U. Dirnagl, Robust research: Institutions must do their part for reproducibility. *Nature*, 2015. 525(7567): p. 25-7.

Slide 12:

Fanelli, D., How many scientists fabricate and falsify research? A systematic review and meta-analysis of survey data. *PLoS One*, 2009. 4.

Tijdink JK, Verbeke R, Smulders YM (2014) *JERHRE* 9(5): 64-71.

Slide 29:

Guillemin, M. and Gillam, L. Ethics, Reflexivity, and “Ethically Important Moments” in Research. *Qualitative Inquiry*, 2004. 10(2): p.261.

Slide 34:

Bouter, L.M., et al., Ranking major and minor research misbehaviors: results from a survey among participants of four World Conferences on Research Integrity. *Res Integr Peer Rev*, 2016. 1: p. 17.

Slide 35:

Haven, T., et al. Major and minor research misbehaviours according to academic researchers in Amsterdam – a mixed method study. Presentation at 6th WCRI Conference 2019.

Other:

Gopalakrishna, G., et al. Assuring research integrity during a pandemic Blog post in *The BMJ Opinion*, 8 June 2020

Speed Science: The risks of swiftly spreading coronavirus research. Reuters. Published 19 Feb 2020

