

FAIRS report

Quantitative and qualitative data: Round 1

Dorothy V. M. Bishop

19 June, 2025

Summary of FAIRS Survey, round 1

This is a report to provide feedback to participants in Round 1 of the FAIRS survey. For background to the survey, please see the protocol here: <https://osf.io/rycqb/>. N.B. At the request of one panel member, the numbering of free text comments in tables below has been randomised, so that a specific individual's responses cannot be tracked across items.

116 panelists signed up to take part in the survey, and completed surveys were received from 95 of them. An item was added at the end of the survey, as follows: “We anticipate that patterns of responses may be different for those who are primarily involved in raising concerns about serious research misconduct (e.g. sleuths, whistleblowers, victims of research fraud) and those whose job it is to respond to reports of such concerns (e.g. research integrity officers). Could you please specify here which of those groups you identify with most strongly - or whether neither applies to you.” The distribution of respondents was as follows:

- Sleuths, Whistleblowers, etc (Group 1_S), N = 37
- Research Integrity Officers, etc (Group 2_R), N = 33
- Others (Group 3_O), N = 25.

The gender distribution was as follows:

Gender	N
Man	64
Woman	31

The bulk of respondents were from Europe or N America:

Continent	N
Africa	4
Asia	1
Australasia	3
Europe	67
N. America	18
S. America	2

For each item, responses are shown by subgroup, where 1 = S(leuths), 2 = R(esearch Integrity Officers) and 3 = O(ther). For simple multiple choice items, the table shows percentages in each group with a given response.

In addition, for items with several subitems, the percentage with agreement/strong agreement is shown for each subitem.

N.B. Each panel member receives an individualised version of this report that either includes a column showing which response they gave, or has * denoting their selection, depending on the item type.

Priorities

Item 1

Which of these should be a primary focus for discussion? (1 for low priority, 3 for high priority).

As there were only 3 options, no chunking of responses was done for this item: this table shows the percentage selecting a rating of 3.

Subitem	1_S	2_R	3_O	All
A) What constitutes serious research misconduct?	35.1	37.5	68.0	44.7
B) How allegations of serious research misconduct are handled	56.8	33.3	36.0	43.2
C) Sanctions for serious research misconduct	32.4	36.4	16.0	29.5

Free text comments on item 1

Free text

1_1_S) "We know it when we see it" so less need for further discussion. A defined process for handling it is the most pressing need.

2_1_S) All 3 topics are important to discuss. But there are, at least, some very clear forms of serious research misconduct (e.g. falsification of data). The handling and sanctions are far more nebulous at the moment

3_1_S) All three would deserve a high priority, but I have ordered them.

4_1_S) Feel like there are already pretty good definitions out there for what serious misconduct is. No need to reinvent the wheel by coming up with a new definition.

5_1_S) How are whistleblowers treated?

6_1_S) I believe how allegations of serious misconduct are handled informs the other two. Due to how allegations have been handled, serious research misconduct can be dismissed, or inappropriate sanctions can be imposed. The how also includes the 'who', and also roads and rules for escalation when one party is not appearing to handle them correctly. There is no use of a law when there is no (good) judicial system implemented or room for corrupted interpretation.

7_1_S) I believe that finding and punishing the guilty party is an outdated approach to quality control. We can learn from how errors are managed in other areas, such as the often-mentioned airlines as well as clinical medicine, and focus more on identifying structural issues.

8_1_S) I strongly feel we need a better framework for handling sanctions. Unless they fall under Home Office or other regulatory bodies like GMC, there is no significant external oversight. This is a serious problem hampering serious misconduct from being prevented.

9_1_S) I think all of these are important, so they are all on the 'high importance' spectrum of things.

Although the statement "what serious research misconduct constitutes" is important, it can also lead to endless discussions and different actors / teams / clubs / societies ending up with different definitions. I think we all know what serious research misconduct means and I think we need to act rather than discuss.

10_1_S) I think the "process" for identifying, investigating and determining sanctions, should be adversarial and clearly defined - similar to the way the criminal justice system is intended to work. That system is not perfect, but it provides guardrails that protect both the accused and the public at large.

11_1_S) I think you may want to distinguish between misconduct by authors and misconduct elsewhere in the peer-review pipeline (rogue editors or reviewers, cohesive citation, citation cartels etc.)

12_1_S) If we first focus on 'what constitutes serious research misconduct,' we may never get to the other two. There need to be consequences for serious research misconduct.

13_1_S) My view is that there is less clarity and consistency on point 2 and little research to best inform it

14_1_S) Restricting definitions of "serious research misconduct" to where researchers *intended* to commit fraud would put the burden of proof onto institutions to prove such an *intention*. That will be extremely difficult.

15_1_S) Sanctions impossible to enact; most institutions have no interest and never follow up on concerns

16_1_S) There are lots of forms of research misconduct including, but not limited to, plagiarism, stealing someone's idea, falsifying data, purposefully not reporting some data, doing LOTS of analysis until something works, not reporting negative data, not being completely honest about how an experiment was done, etc. These all become problematic to one point or another because resources can be spent trying to do something that is already known not to work, following positive data with an idea of your own when the original data from another investigator was wrong/unrepeatable, effects on patient outcomes and other things. Some may be worse than others, but they all lead to problems and wasted resources to some degree.

Free text

17_1_S) Though it is of course important to have criteria for what constitutes serious research misconduct, my experience is that debates on semantics tend to detract from the concrete implementation of mechanisms to prevent harmful conduct. So searching for the "one true definition" seems less fruitful and useful to me.

18_1_S) We need agreement between publishers, institutions, funders and researchers on appropriate sanctions. Sanctions which would occur need to be visible to act as deterrents.

19_1_S) Why do researchers violate scientific ethics?

20_2_R) Awareness of potential issues, followed by awareness of consequences are the two most important things for me. Processes for handling allegations may vary between institutions/contexts for very acceptable reasons.

21_2_R) How allegations are handled, but also awareness of when/how they should be raised, the culture of even making such allegations.

22_2_R) I interpreted the question as "should be a primary focus for the research integrity community", not "interests me personally most".

23_2_R) It seems to me that the biggest problem is detecting falsification or fabrication, particularly as the misconduct becomes more sophisticated and polished (including with AI support), and to detect this before a research report is published. General shortcomings in the peer-review process again mean that falsification/fabrication is usually detected serendipitously and by looking back at publications from authors where misconduct somewhere has been demonstrated. My own view is that there are probably a lot publications which are built on findings that are not robust, but they have not been identified as such, either pre- or post publication.

24_2_R) Much of this has already been considered by publishing industry groups, including COPE, ICMJE, CSE, WAME, etc.

Other idea - how to collaborate across stakeholders

25_2_R) Regarding sanctions for serious research misconduct - my University's Procedure does not include disciplinary action. If an allegation is upheld, the information is shared with Human Resources to take forward in accordance with the University's Disciplinary Procedure. However, the Pro-Vice Chancellor Research & Innovation may recommend informal remedial actions.

26_2_R) Sanctions may already be defined by institutions, societies, or other jurisdictions. Being prescriptive may not add value in these settings, but could be helpful in settings lacking defined policies.

27_2_R) The Concordat definition of Research Misconduct gives at least a starting point - it would be more useful to focus on the management of cases falling under those definitions, rather than revisiting definitions at this time.

28_2_R) There are good, albeit slightly varied, definitions of serious research misconduct already known and in public domains.

Work to handle allegations needs work and discussion so that these are handled appropriate and so that we no longer resort to public shaming.

'Sanctions' is a strong and punitive word to use here, surely it might not always be the case that sanctions are appropriate, do we mean consequences?

29_2_R) Whilst I think all topics are important, the foundational work here is establishing a value framework of what is good and what is bad (and what is unclear). The remaining two topics can follow (how they are handled, sanctions) and may be institution or context specific.

30_3_O) Cross-sector agreement on what constitutes serious research misconduct would be necessary ahead of the second and third points. Topic areas that have a more positive framing but would still illicit feedback in this area could include:

- how to create and maintain positive environments for discussing QRPs, that support all parties
- how the different parties within the research system can work together on issues (different types of research institutions, international collaborations, etc.)

Free text

31_3_O) How to investigate allegations and the powers and practices associated with such allegations has a material shaping effect on what information will be discovered and thus helps determine the 'seriousness' of the issue.

32_3_O) How we can change the environment so that misconduct would be less likely to occur and to be caught earlier.

33_3_O) I ranked sanctions as "2" since there is only a limited number of potential sanctions which are also limited by what the employment and/or contractual law allows.

34_3_O) I've provided a priority list but there is interdependence and contingency e.g., to have sanctions and to determine how allegations are handled we need to define what constitutes serious research misconduct

35_3_O) Identification of the "entrance portal" for an allegation to constitute serious misconduct would be beneficial. Sanctions are so variable across the sector and different nations that it is not really possible to have a coherent conversation with meaningful outcomes.

36_3_O) Investigative committees must be clear about what constitutes serious misconduct, i.e., misconduct likely to harm the research record, research participants, the environment, colleagues, etc. However, it is equally important that the committee agree on how to handle such allegations—ideally, through the development of clear policies and guidelines. The precise sanctions need to be aligned with the outcome of the investigation, the level of intent, damage, etc., so I don't think this should be a priority since it is so context-dependent.

37_3_O) Methods for identification of potential serious research misconduct (although this could be covered under statement 1 and 2)

38_3_O) My priority would be to handle allegations in such a way that both the whistleblower and the accused are protected against undesirable consequences. That protection of course has its limits: for the whistleblower it ends when the allegation turns out to be wrong and made by malicious intentions, for the accused when the allegation turns out to be justified.

39_3_O) Not sure a focus on sanctions is a good idea - could be counter-productive (ie inducing risk aversion and defensiveness)

40_3_O) There is a lack of understanding of serious research misconduct especially with the proliferation of artificial intelligence. I think understanding what constitutes serious research misconduct and how to avoid it should be the first step. Handling allegations and sanctions are also important but secondary.

41_3_O) We should define what constitutes serious cases to elaborate on sanctions and to understand how to handle them

Burdens of serious research misconduct

Item 2

How common is the problem of serious research misconduct? (select one). Table shows percentages selecting each option in each group. (For personalised reports, * denotes your response).

Options	1_S	2_R	3_O
A) Serious research misconduct is rare relative to the amount of published research literature	13.5	30.3	40.0
B) Serious research misconduct is becoming more prevalent and starting to pose a threat to the research literature	8.1	45.5	20.0

Options	1_S	2_R	3_O
C) Serious research misconduct is already common enough to pose a major threat to the research literature	78.4	24.2	40.0

Agreement: . For this item, 78% sleuths endorse response C, whereas far fewer do so in the other groups.

Free text comments on item 2

Free text
1_1_S) Although we have little data, due to lack of transparency (another serious problem), I believe from what I have seen that it already poses a major threat.
2_1_S) Article in Nature Nature Vol 624 21/28 December 2023 by Richard Van Noorden claims that "More than 10,000 research papers were retracted in 2023 - a new record". About 5 million papers are published each year (in 30,000 journals) so 10 thousand represents a relative frequency of 1 in 500. That's high IMHO. In an editorial in "Anaesthesia" in 2020 John P.A. Ioannidis claimed that "Hundreds of thousands of zombie randomised trials circulate among us" and I think that's spot on.
3_1_S) Because science is cumulative, there is a risk that grave errors are copied over and over again. You might end up with 'fruit from the poisonous tree', which can lead to persistent problems in whole subfields of science.
4_1_S) I don't think false research findings are at the level where it poses a threat to the literature, but false research findings are widespread enough to skew the publishing landscape by incorrectly enhancing the rankings of weak journals (which may have the affect of boosting the CVs of weak researchers, who move up in academia)
5_1_S) I think James Heathers' recent preprint is the best current overview
6_1_S) If you define "serious research misconduct" as only intentional, it is quite rare.
7_1_S) In my experience questionable research practice appears to occur much more frequently than serious research misconduct issues. However, in my field (engineering) it has been suggested research integrity issues have not been extensively studied, and therefore we don't understand the true extent of issues (Written evidence submitted by the Royal Academy of Engineering (RIN0084) for the House of Commons Science, Innovation and Technology Committee Reproducibility and Research Integrity report, 2023).
8_1_S) It is common enough that anyone who has every conducted a (systematic) literature review will have found examples of it in the literature.
9_1_S) It is difficult to estimate the percentage of researchers who commit misconduct. However, I personally believe the ammount of researchers committing scientific misconduct could be anything between 10% and 50%. I acknowledge this range is quite a wide range, but we cannot pin down a precise number. In some research fields is higher than others
10_1_S) It's hard to estimate how prevalent it is. But I feel like it's a lot more common than most would think. See also paper by Heather et al. on the estimate.
11_1_S) It's rare, but only because the denominator in the fractional calculation is massive and continues growing exponentially.
12_1_S) Just scratching the surface finds so much serious academic misconduct, so there will be much more!
13_1_S) Once I was young and naive and thought that research misconduct was only a problem in a few areas of research, but *additional* areas of widespread malfeasance keep coming to light.

14_1_S) See prior response. Some major problems are just starting to get worse, but the minor problems (negative data, methods, etc.) have existed for a long time.

15_1_S) Serious research misconduct is common enough to stigmatise reporters of it as the problem across universities globally. Some research institutions/universities are built on faculty that have used, and are recognised for using, serious research misconduct to build their careers. Other research institutions/universities, and these are many globally, have little incentive to admit to senior faculty's serious research misconduct, as this tarnishes the university's reputation and funding. There appears to be little realisation that hiding serious research misconduct and/or dismissing it through corrupted processes is in itself misconduct and further compounds the issue. Also because there is no good system that holds universities accountable, let alone a system that supports a more balanced power and effort load between the individuals reporting vs the individuals reported who have the university on their side.

Those cases that come to light in the news are not rare, but the tip of the iceberg.

16_1_S) There will be variations between fields and discussing "the research literature" in general is probably not that meaningful, at least in quantitative terms. Serious research misconduct (SRM) is one end of a spectrum and I would say that although focusing on that end is important, the "threat to the research literature" comes from the spectrum. To give one example, careless citation practices are not SRM yet they can amplify SRM in other articles and distort the records in many other ways.

17_1_S) This is discipline-specific. In health and medicine it seems pre-clinical has a larger problem than clinical but some clinical areas (e.g. pregnancy and childbirth seem more impacted than others and in those the third option would be most relevant.

18_1_S) This under-appreciated study seems the best evidence to me: <https://srhe.ac.uk/wp-content/uploads/2020/03/WILLIAMSJoannaROBERTSDavid.pdf>
And that's before the rise of paper mills.

19_2_R) All in all, serious misconduct (with the intention to mislead) is rather rare, I have the impression. But the challenge of fake papers submissions (AI generated) flooding journals, of which not all are well detected, is enormous. It is not misconduct by PhD-holding researchers, but by criminal organisations falling outside of accountability standards common to universities and research institutes.

Reference:

Ioannidis, Transparency, bias, and reproducibility across science: a meta-research view, JCI, <https://www.jci.org/articles/view/181923?s=09#B41>

"Fraud may become more widespread with new AI tools. For example, Wiley recently revealed that when they used a new detection tool, 10%–13% of the 10,000 papers submitted per month in 270 journals were identified as products of paper mills (40). Apparently, fake papers have already massively invaded the scientific literature (41)."

20_2_R) Although there is more media attention on the issue, I have not seen a rise in proven allegations. What I have witnessed is a rise in breakdowns in communications and working relationships since the pandemic, which has led to an increase in complaints which require some form of mediation. Also, the comments posted on post-publication platforms such as PubPeer suggest issues are rife, but are often the result of misunderstandings.

21_2_R) Data indicates that incidence of serious research misconduct varies by context and country. There is little evidence that it is increasing or becoming more prevalent. However, it is widely recognised that if fraudulent research enters the literature base then this has potential to impact on other research.

22_2_R) from my experience - as someone who investigates on a behalf of a HEI - serious research misconduct is rare in so far that we don't have many (if any!) reports of it. the impact, should it occur is massive as it erodes trust in research, partnerships, researchers and HEIs. From my experience there seems to be a sliding scale that starts with minor breaches that then evolve into more serious unwanted behaviours/practices

23_2_R) <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0005738>

Even if only 2% of researchers engage in serious misconduct (which could perhaps be interpreted as relatively rare by some), this would be a concerning number. As the article suggests (cf. numbers on incidence of research misconduct when respondents are asked about the behavior of colleagues), the real number is likely higher.

Free text

24_2_R) I don't think the research community has fully woken up to the problem of unreliable research driven by a perverse incentive structure. There is still a romantic view of the "detached scientist/researcher" driven by mostly altruistic/humanitarian motivations, which does not reflect reality.

25_2_R) I think it is rare in the UK. However, questionable practices are more prevalent and concerning. It is possible that questionable practices may be used as an alternative to serious research misconduct. What I mean is, being selective about data rather than fabricating it.

26_2_R) Serious scientific misconduct is still rare relative to the overwhelming bundle of published papers. However, just within the group of landmark papers/game changers it occurs too frequently. My impression based on retractions is that the peak was in the first 10 years in the 20's century but research misconduct leading at times to worse quality of care should not happen that frequently

27_2_R) The answer depends on what is considered as serious research misconduct.

28_2_R) The honest answer is: we don't actually know. Nobody knows. The entirety of scientific enterprise is built on trust: you're reviewing the data of strangers whom you are asked to trust explicitly and whose behaviour you are asked to trust explicitly. We may need an "Ed Sheeran" intervention whereby you record everything to avoid the accusation of misconduct. The survey requires an answer but, as a scientist, I don't have the evidence. So, it is forced choice and is not true.

29_2_R) the publicity around "research integrity sleuths" suggests the problem is far more prevalent than previously acknowledged.

30_2_R) The related problem of paper mills/fake authorship is why I chose this more severe option.

31_2_R) This is based only on my experience of reported incidents - I have no expertise regarding misconduct which goes unreported or undetected.

32_2_R) While the prevalence of misconduct is minimal, its impact is significant.

Sources to review include www.science.org/content/article/fake-scientific-papers-are-alarmingly-common and <https://scholarlykitchen.sspnet.org/2024/04/18/guest-post-making-sense-of-retractions-and-tackling-research-misconduct>

33_2_R) Whilst the first statement is true (it is relatively rare), I still think it presents a significant threat to scientific knowledge and a reputational threat for our professions.

34_3_O) I feel this is a factual question which can be best answered by carrying out a comprehensive analysis. However, I also know that this data would be difficult to obtain and with questionable quality (due to different definitions and procedures used in different institutions and/or countries). Also, there is still some uncertainties concerning the prevalence of misconduct and whether it is over- or underestimated by different methods. See: How Many Scientists Fabricate and Falsify Research? A Systematic Review and Meta-Analysis of Survey Data Fanelli D (2009) How Many Scientists Fabricate and Falsify Research? A Systematic Review and Meta-Analysis of Survey Data. PLOS ONE 4(5): e5738. <https://doi.org/10.1371/journal.pone.0005738>

Considering all the above, my honest answer would be that I don't know for certain how common it is.

35_3_O) I used to think it was rare but there have been too many high-profile revelations recently, and complacency can no longer be justified.

36_3_O) I'm not sure if there is any data or reference that counts the numerator for serious research misconduct. We don't even know if all the causes of retractions can be considered serious

37_3_O) In pain medicine there are a number of examples identifying increase in retractions and potential misconduct however it is unclear whether definite misconduct has been identified. The impact of such studies if not identified has been demonstrated to impact on results of meta-analyses conducted to evaluate pain interventions therefore I think it is already a serious problem

<https://doi.org/10.1016/j.jpain.2023.07.003>

10.1097/j.pain.0000000000002947

38_3_O) In some disciplines, I would judge that the threshold for the third category has been reached. But not across all disciplines.

39_3_O) It is rare, yet still very important to address.

40_3_O) My concern is that we aren't able to accurately identify/measure scale of this and it's also hard to identify what will be a threat but arguably all misconduct is. A systematic review of retractions related to pain research identified 66 % of retracted studies were due to misconduct but "observed many instances where retraction notices for error or unreliable data were ambiguous or contained euphemisms for misconduct."

10.1097/j.pain.0000000000002947

41_3_O) My impression is that it is becoming more prevalent but this may be secondary to more discussion about research misconduct. Coming to the forefront more often with AI.

42_3_O) Please see UKCORI's annual statements from 2023 and 2024 which pulled together a variety of evidence sources including IRIS survey data, Retraction Watch data, and information from annual statements of research integrity.

[https://ukcori.org/our-work/annual-statement-](https://ukcori.org/our-work/annual-statement-2023/#:~:text=We%20have%20structured%20our%20annual,care%20and%20respect%2C%20and%20accountability.)

2023/#:~:text=We%20have%20structured%20our%20annual,care%20and%20respect%2C%20and%20accountability.

<https://ukcori.org/our-work/research-integrity-in-the-uk-annual-statement-2024/>

Also see the landscape study UKRI commissioned which was published in 2020: <https://www.ukri.org/wp-content/uploads/2020/10/UKRI-020920-ResearchIntegrityLandscapeStudy.pdf>

43_3_O) Rare is a bit vague here. It's likely in the range of 4-6% of published articles. That can rightly be considered as a lot or quite rare, so let's get a bit more quantitative. See:

Oransky I. Retractions are increasing but not enough. *Nature* 2022; 608: 9.

<https://www.nature.com/articles/d41586-022-02071-6>

Bik EM, Casadevall A, Fang FC. The Prevalence of Inappropriate Image Duplication in Biomedical Research Publications. *mBio* 2016; 7: 10.1128/mbio.00809-16. <https://doi.org/10.1128/mbio.00809-16>

Van Noorden R. How big is science's fake-paper problem? *Nature News*: 6 November 2023.

<https://www.nature.com/articles/d41586-023-03464-x>

Gopalakrishna G, ter Riet G, Vink G, Stoop I, Wicherts J M, Bouter L. Prevalence of questionable research practices, research misconduct and their potential explanatory factors: a survey among academic researchers in The Netherlands. *PLoS One* 2022; 17: e0263023.

<https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0263023>

Fanelli D. How Many Scientists Fabricate and Falsify Research? A Systematic Review and Meta-Analysis of Survey Data. *PLoS ONE* 2009; 4(5): e5738.

<https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0005738>

Y. Xie, K. Wang, Y. Kong, Prevalence of research misconduct and questionable research practices: a systematic review and meta-analysis. *Science and Engineering Ethics* 2021; 27: 41.

<https://link.springer.com/article/10.1007/s11948-021-00314-9>

44_3_O) Serious research misconduct is very prevalent, especially in certain countries.

45_3_O) The evidence regarding retractions, paper mills, hijacked journals, predatory practices etc. would suggest that there are significant problems threatening the integrity of the research literature and that these are increasing. Examples of relevant papers:

Van Noorden. More than 10,000 research papers were retracted in 2023 — a new record. *Nature News* 12 December 2023. <https://www.nature.com/articles/d41586-023-03974-8>

Ivan Oransky. Retractions are increasing but not enough. *Nature* 2022; 608: 9

In 2021 772 of 3544 papers retracted originated in papermills – Candal-Pedreira C, Ross JS, Ruano-Ravina A, Egilman DS, Fernández E, Pérez-Ríos M. Retracted papers originating from paper mills: cross sectional study. *BMJ*. 2022 Nov 28;379:e071517. doi: 10.1136/bmj-2022-071517. PMID: 36442874; PMCID: PMC9703783.

Papers and peer reviews written by ChatGPT in 2023: 24/04/2024 <https://retractionwatch.com/>

Van Noorden R. How big is science's fake-paper problem? *Nature News*: 6 November 2023.

Free text

<https://www.nature.com/articles/d41586-023-03464-x>

Nagarkar S. "Research paper mills": A factory outlet for dubious research. Indian J Med Ethics. Published online first on April 26, 2024. DOI: 10.20529/IJME.2024.025.

Prillaman M. 'ChatGPT detector' catches AI-generated papers with unprecedented accuracy: tool based on machine learning uses features of writing style to distinguish between human and AI authors. Nature News: 6 November 2023. <https://www.nature.com/articles/d41586-023-03479-4>.

Katharine Sanderson. Science's fake-paper problem: high-profile effort will tackle paper mills. Nature News 19 January 2024. https://www.nature.com/articles/d41586-024-00159-9?utm_medium=Social&utm_campaign=nature&utm_source=Twitter#Echobox=1705659987

46_3_O) Whilst (in my opinion) serious misconduct it is rare, I believe the potential damage it causes is substantial.

Item 3

How harmful are the impacts of serious research misconduct to different segments of society? Please code as 1 (low harm) to 5 (strong harm)

Agreement: A 3-point scale was used to compute agreement, with 1-2 collapsed and 4-5 collapsed. Strongest agreement was achieved for subitem A (research consumers) and subitem B, where harm to other researchers was rated as high by all groups.

Subitem	1_S	2_R	3_O	All
A) Consumers of research findings, e.g. patients whose treatment is informed by medical research or policy-makers who depend on research findings	75.7	75.8	80.0	76.8
B) Other researchers who try to build on fraudulent findings	83.8	78.8	76.0	80.0
C) Funders, whose funds are wasted	70.3	54.5	52.0	60.0
D) Institutions whose resources are diverted to tackling misconduct	16.2	48.5	32.0	31.6
E) Society when public trust in research is eroded	67.6	63.6	80.0	69.5

Free text comments on item 3

Free text

1_1_S) "Institutions, whose resources are diverted to tackling misconduct" only applies if institutions lack clear and efficient processes

2_1_S) All the above are seriously impacted. Also researchers who raise red flags are also harmed through research misconduct of others.

3_1_S) Also researchers who work with a leader who commits serious misconduct. These researchers are often aware of the issues and are in a difficult position. They might be working in toxic and stressful conditions especially if they get into conflict with their leader. Or their reputation could be damaged.

Free text

4_1_S) Another harmful impact is to the scientific establishment, when individuals rely on serious misconduct as a substitute for competence, and thereby rise through the system faster than other individuals who handicap themselves by actually performing experiments.

5_1_S) Anyone using research findings for decision-making is highly impacted by fraudulent research, and there is high potential for public harm. While often this is focussed on medical research (such as the Boldt case, <https://retractionwatch.com/2013/02/19/does-scientific-misconduct-cause-patient-harm-the-case-of-joachim-boldt/>), I have seen a case where serious research misconduct occurred during work focussed on a health and safety critical engineering application.

6_1_S) Hilarious to worry about institutions diverting resources to tackle misconduct when, in reality, they do so little and in many cases could not care less - the chancellery happily counts fake papers in the university's output!

7_1_S) I feel like "Consumers of research findings" and "Other researchers" should belong on a shared 4-rank, if I HAVE to make a choice, I'll choose this.

8_1_S) I have classified the impact on institutions as lower than the others, as I believe tackling misconduct should be part of the standard resource and budget allocation at an institution. In an ideal world, these resources could be allocated elsewhere - to create an ideal world, these resources need to be allocated to support tackling misconduct.

9_1_S) I have grade the harms to institutions as relatively low because, in my experience, in most cases institutions do not divert resources to tackling misconduct. They ignore and cover it up.
I have grades the harms to public trust as relatively low because the public does not appreciate the full extent of serious research misconduct.

10_1_S) I think there is currently a low level of harm due to serious research misconduct on institutions, but only because institutions currently do not invest a large quantity of resources into investigating research misconduct (relative to the prevalence of misconduct, in my opinion). I wish that serious research misconduct was currently more harmful to institutions, as this would compel them to take more serious action to address and prevent it.

11_1_S) I understood the question in general terms as referring to the current situation overall. Of course, for Macchiarini's patients the harm has been not just strong, but deadly. And there are many other harms of that type, but I suppose that there are many consumers of research findings who are satisfied hence my rating. Similarly, in spite of all, public trust in scientists remains high, especially compared to other professions (journalists, politicians...).

12_1_S) Institutions do not divert resources into tackling misconduct. On the contrary, they often divert resources into defending and encouraging misconduct. Researchers do not attempt to build on each others findings, they are very rarely harmed. The biggest harm is on taxpayers and charity donors who don't realise how their money is wasted.

13_1_S) It depends on the discipline. In some areas misconduct is very harmful. I

14_1_S) Most legitimate research has hardly any impact on policy, application, or wider society, so fraudulent research is unlikely to have major impact either.

15_1_S) Particularly important to tackle this when it comes to the climate change crisis we are facing and will face even more in the future

16_1_S) Patient treatment would be higher if implementation of current research was done more quickly. Institutions don't do much that I can see so not a lot of resources wasted.

17_1_S) Public trust in science is remarkably high despite reproducibility problems etc

18_2_R) - By far, the worst impact is on consumers and other researchers (wasting their time). As work that turns out to have been time waste eventually, is less harmful than wrong medical treatments or inefficient policies, I ordered this way.

- I have the impression that the impact on misconduct on public trust is overestimated.

Free text

- Institutions should devote resources to quality assurance and tackling misconduct anyhow. Prevalence of misconduct can be a driver for developing institutional policies, guidance and capacity for research integrity.

19_2_R) Funders have a significant responsibility for causing the pressure that drives research misconduct and their processes waste more institutional resources than research misconduct cases do.

20_2_R) High premium on quality information to the general public, in the information age.

21_2_R) Institutional "punishments" seem to vary widely, which can lead to inequity and harmful/career-limiting impacts on some researchers. Also, co-authors (particularly Early Career Researchers (ECRs) who feel pressured by more senior researchers) and others in the same lab/network can also be negatively impacted by an individual's misconduct.

22_2_R) Misconduct will always occur, so both funders and research sponsors should have processes in place to identify and address it. When these systems fail it is the consumers of research, be they society, patients or other researchers, are the ones who suffer the consequences.

23_2_R) Unless the research affects consumers and policymakers in a more or less direct manner (e.g. because the research informs or develops treatments or other applications), the impact on them is probably rather low. However, if such effects occur, they are likely to be very harmful. Thus, I've opted for "strong harm" due to the potential enormous severity of these cases.

24_2_R) When serious research misconduct does take place it is harmful to individuals, users of research and society.

25_2_R) While it is important that research funding is used appropriately, one could argue that by funding research results are not guaranteed and may not always be 'utilised' in the most effective way. Perhaps this is also contributing to the larger issue of research misconduct.

26_2_R) Whilst it is harmful to all stakeholders, I think the most harmful impact is the undermining of societies faith in the scientific process and the consequent harm that comes to patients who make ill-advised (misinformed) choices or are deprived of effective treatments.

27_3_O) It is difficult to qualify harm, but I used "5" for potential lethal harms or at least risks to persons' health. "4" refers to systemic harm that could impact whole groups of researchers for a longer period of time. "3" and "2" refer to single instances of harm, which are mostly monetary in nature and reflect the cost of doing something (e.g. one research project among hundreds, one administrative procedure in addition to hundreds). I assigned "2" for tackling misconduct since I understood narrowly as handling cases and allegations and sustaining necessary personnel for that. If it also includes training, prevention and awareness-raising, then it would be "3" at least.

I did not consider harm to the reputation of individual researchers and institutions, as these are also difficult to assess, since sometimes the reputation of having worked with someone who conducted fraud, is difficult to overcome. See: Kozlov (2022) How a scandal in spider biology upended researchers' lives. Nature 608, 658-659 (2022). doi: <https://doi.org/10.1038/d41586-022-02156-2>

28_3_O) Research misconduct and the impact it has on the public is the wrong question in my opinion. There is such a strong belief system in anti-science that an emphasis on how to encourage "good science" for the public misses the point that the public consumes pseudo-science and completely false claims in far outpaced ways than anything that even barely stands a test of integrity. This is more a question of how to conduct good science among scientists. Including the public in this discussion is an entirely different topic.

29_3_O) Researchers and research funders should be able to notice the existence of serious research misconduct. If they are not, they are bad researchers and bad funders.

30_3_O) Serious misconduct is harmful to everyone involved, but of course the most serious consequences are for those who are directly affected and society at large.

31_3_O) The impact on societal trust is the most concerning aspect.

Free text

32_3_O) The seriousness of the damage caused by serious misconduct must be put in context. Harm to humans, either in society (the public, policymakers) or those who depend on trustworthy research outcomes for their well-being (e.g., patients), is more damaging than financial harm to either funders or research-performing institutions. However, I believe that harm to the research record that damages future research is very serious since it may ultimately damage the consumers of research outputs, be they patients, the public, or policymakers.

33_3_O) There has been a lot published on trust in research. The following sources might be of interest.
Public attitudes to science survey <https://www.gov.uk/government/publications/public-attitudes-to-science-2019>
Edelman trust barometer <https://www.edelman.com/trust/trust-barometer>
Public dialogue
<https://www.sciencecampaign.org.uk/analysis-and-publications/detail/case-launches-public-dialogue-exercise-to-explore-societys-stake-in-rd/>

34_3_O) Trust is the key concept to me. See:
de Ridder J. How to trust a scientist. *Studies in the History and Philosophy of Science* 2022; 93: 11-20.
<https://doi.org/10.1016/j.shpsa.2022.02.003>
Peels R, Bouter L. Replication and trustworthiness. *Accountability in Research* 2021.
<https://doi.org/10.1080/08989621.2021.1963708>

Goals of those responding to serious research misconduct

Item 4

In responding to serious research misconduct, several goals may be considered. Please rate how important each of these is, from 1 (unimportant) to 4 (very important)

Agreement: This table shows the percentage giving the highest rating (4).

Subitem	1_S	2_R	3_O	All
A) To maintain academic integrity, including to correct the academic record	70.3	78.8	68.0	72.6
B) To punish offenders	13.5	9.1	12.0	11.6
C) To deter others from committing fraud	40.5	27.3	40.0	35.8
D) To maintain trust and rigour in research	59.5	84.8	88.0	75.8

Free text comments on item 4

Free text

1_1_S) All these are incredibly important. It is also important, in the biomedical sphere, relating to the goal of protecting patients, and doing no harm, since some examples of misconduct can and have indeed led to serious injury and even death. This is an intolerable situation.

2_1_S) Deterrence and ensuring it does not happen again should be the primary goal in a response. Focussing on punishing offenders may simply make it more likely for people to hide issues or work less transparently. I have seen serious research misconduct committed in an attempt to cover up questionable research practice, after the questionable practice was pointed out.

Free text

3_1_S) I think that the scientific record is the greatest tool available to mankind. Doing everything in our power to maintain it, should automatically lead to an increase in public trust and it would (hopefully) deter others from committing fraud (just like a clean environment will encourage people not to litter).

4_1_S) Part of the first, maintaining academic integrity, or really re-instituting it, including correcting the academic record - and in so ensuring that breaches of it remain indicated and by whom - is in a large way punishment of the offenders already. Similarly, punishment would likely be a strong deterrent to others. As such, I don't see the punishment of offenders as a goal, but more as an outcome to maintaining integrity and trust, and a means for deterring others.

5_1_S) Punish is a difficult item to consider. I do not think it is important to punish scientific misconduct per se, but I think it is important that these researchers are not allowed to conduct research in the future. This is, of course, a punish in itself, but it is to protect the scientific record.

6_1_S) Punishment may not always be necessary. Sometimes people do not know they are doing something wrong (methods) and there is no such thing as "The Journal of Negative Data" and negative data is hard to prove definitively, so some things are hard to correct.

7_1_S) The academic record is a joke don't worry about fixing it. Even if we found and removed all the fake findings it wouldn't be a drop in the ocean compared to the "honestly" produced wrong findings. Neither should anyone trust research. Ever. So don't worry about that. Also, there is no palatable punishment great enough to act as a deterrent. The death penalty might work as a deterrent but it would not be acceptable. So the only thing worth doing is punishing offenders for the sake of justice. After all, don't we punish honest researchers enough already?

8_1_S) The correction of the scientific record is paramount in my view, among other reasons because all other items in this list follow from it. There is a deterrence and a punishment effect in correcting science (and that is probably one of the reasons why it is so difficult). If done well, it would also of course acts as a signal that science is self-correcting and therefore help maintain trust and rigour in research.

9_1_S) The old adage "fraudsters gonna fraud" applies. Responding to misconduct is not a deterrent - those who commit misconduct just do it, they're not following the publicity on how such cases are handled/resolved.

10_1_S) When there is research misconduct, it will often be necessary to prevent offenders committing the offences again. The primary aim is to prevent future misconduct by an individual who cannot be trusted. That may be seen as the individual being punished, but punishment should not be the primary aim. Nevertheless seeing the loss of an appointment or status by an offender acts as a deterrent for others.

11_2_R) As disciplinary actions are confidential, the outcomes of proceedings are often not well publicised.

12_2_R) Care needs to be taken to distinguish between mistakes/desperation driven by perverse incentives, and direct maliciousness. In most cases it is the system that drives misconduct in individuals who are bowing under personal pressure. Unfortunately the outcome is that everyone suffers as integrity and trust in research is subsequently compromised.

13_2_R) I do not understand the meaning of "to maintain academic integrity", so I answered only for "to correct the academic record". This is the most relevant. Punishing offenders additionally is least critical: as science is a reputation game, having an allegation of serious research misconduct proven against you (and it being known among colleagues and peers) is a very severe punishment after all.

14_2_R) If the primary focus is to maintain the scholarly record, we should be encouraging authors to self-report errors, etc.

Especially for ECRs, we ought to reframe "punishments" as educational opportunities.

Also, the same institutions disciplining researchers may have set up those individuals to fail (eg, when a publication was a graduation requirement for some Chinese medical students, but their institutions didn't provide time/support for students to conduct the research, leading to authorship-for-sale schemes).

15_2_R) In my experience, punishment is usually avoided

Free text

16_2_R) It is difficult to believe that researchers committed FFP because others are committing fraud. Honesty and rigour should be intrinsic values

17_2_R) Responding to academic fraud will not deter serial offenders- why would they care?

18_2_R) Whilst sanction and deterrence are important, the maintenance of trust in the scientific endeavour is most important and this will (in part) follow from assurance of rigor and integrity within the research endeavour and effective communication that this is happening.

19_3_O) All of this is important although to avoid top rankings everywhere I selected punishment as less important. Provided the offenders are removed from their positions and academia, I am less concerned about what happens to them afterwards.

20_3_O) An objective promoting a culture of accountability is preferred here.

21_3_O) But, punishing offenders may have an impact on the other items listed.

22_3_O) Correcting the academic record is, in my opinion and experience, almost impossible.

23_3_O) I would say it is crucial to address serious research misconduct to mitigate its harm and societal impact. There are numerous cases where such misconduct has led to societal alienation, prejudice, and even loss of life.

24_3_O) Need to connect this issue with broader debates on mis/disinformation in society, and the rapid erosion of trust in institutions that can be empirically observed.

25_3_O) Punishing the offender does not need to be the priority but maintaining trust and rigor is extremely important with the influx of disinformation and misinformation.

26_3_O) Punishment must be , at least at this point, a major topic of discussion. If no meaningful action is taken against serial offenders there is no hope for stopping the crisis .

27_3_O) Sanctioning culprits and retracting fraudulent, fatally flawed or ethically unacceptable research is of course important. It's the equivalent of surgery. But to me preventing research misconduct (and QRPs, which likely do more damage because these are so frequent) is much more important. The equivalent of that is public health.

28_3_O) While holding researchers accountable for their fraudulent actions is important, I believe that the priorities for responding to serious misconduct have an internal driver (correcting the research record) and an external driver (maintaining trust and rigour in research by other researchers and society.) I am not convinced that seeing offenders punished is a strong incentive to deter others from committing fraud. I cannot cite any particular evidence for this observation other than the continuing rise in case numbers, as identified in recent meta-analysis.

Fanelli, D. (2009) How many scientists fabricate and falsify research? A systematic review and meta-analysis of survey data. PLoS One, 4(5): e577388

Xia et al. (2021) Prevalence of research misconduct and questionable research practices. A systematic review and meta-analysis. Sci Eng Ethics, 27, 41

Kaiser et al. (2022) Questionable research practices and misconduct among Norwegian researchers. Sci Eng Ethics, 28(1): 22

Gopalakrishna et al. (2022) Prevalence of questionable research practices, research misconduct and their potential explanatory factors: A survey among academic researchers in the Netherlands. PLoS One, 17(2): e0263023

Phogat et al. (2023) Misconduct in Biomedical Research: A Meta-Analysis and Systematic Review. J. Int Soc Prev Community Dent. 13(3): 185-193

Factors hindering academic institutions' response to serious research misconduct

Item 5

Various factors may hinder academic institutions' response to serious research misconduct. Please rate the following from 1 (not much of a hindrance) to 5 (substantial hindrance)

For this item, the percentage agreeing was computed after collapsing the two top categories, 4 and 5. The standout result was the very high endorsement of subitem B by the Sleuths.

Subitem	1_S	2_R	3_O	All
A) Lack of co-ordination between relevant research actors, such as institutions, funders and publishers	48.6	54.8	58.3	53.3
B) Conflict of interest for institutions investigating their own researchers	91.9	48.5	54.2	67.0
C) Lack of resources	32.4	63.6	32.0	43.2
D) Lack of expertise	59.5	45.5	41.7	50.0
E) Concern about legal repercussions	55.6	45.5	69.6	55.4
F) Large number of vexatious/trivial accusations of misconduct	13.5	25.0	12.5	17.2
G) Bureaucratic delays or inefficiencies in the investigation process	48.6	48.5	58.3	51.1
H) Complexity of cases	32.4	57.6	50.0	45.7
I) Due process concerns to ensure fairness to all involved in the case	24.3	45.5	33.3	34.0

Agreement: Overall, few items/ groups achieved 80% agreement (when rating scale collapsed to 3 categories), but the high rating of B (institutional COI) and the low rating of F (vexatious complaints) did achieve 80% agreement among sleuths.

Free text comments on item 5

Free text
1_1_S) A key element to consider is which response are we considering or expecting. A major problem is the intertwining of the search for responsibilities, apportioning blame, etc, with establishing what is fraudulent and needs to be retracted. If by response we mean human resources consequences for fraudsters, it is quite normal that this would take time. But in many cases, establishing with a high degree of certainty that an article contains fabricated data can take minutes. Even in those cases, the correction of science takes years when it happens at all: the explanation for that is not in the list in my opinion. It is simply that this neither the main objective nor the priority of these investigations.
2_1_S) All of these apply very strongly to the current situation. I feel from what I've seen that the biggest issue is institutional COI. Having seen misconduct from probably all the angles possible (!), I understand the institutional fear of reputational damage and so the only way to tackle this is to take the decision making away from the

Free text

institution where the misconduct has taken place. I can't see another way to prevent this. I feel this is probably the major issue that hampers misconduct being sorted properly.

3_1_S) By academic institutions, I assume you mean hiring organisation, like universities. But it should also include journals and publishers.

In my experience, lack of will was the biggest obstacle. Followed by the default deferral to journals and peer-review as arbiters of quality.

4_1_S) Concerns about the institution's reputation. Conflict of interest when dealing with accusations of a colleague.

5_1_S) Cowardice and incompetence pervades the system from root to branch. There is no obstacle too great that should prevent anyone in a decision making position from taking decisive action against fraud. Presumably the only reason they ascended to their position at universities/publishers/funders is precisely because of their hopeless and ineffective personality. Who in their right mind would become a university administrator? It's a selection tool for B level players. They signed up for catered lunches, the out of office email response, and work from home on Wednesdays. So I'm saying lack of expertise is most important but what I really mean is lack of competence.

6_1_S) I think another problem is the shared responsibility accross all stakeholders (scientist, editors, publishers, institutes, funders, research societies). Everybody could do something about serious research misconduct, but it's easier and less time consuming to point to another party that should 'take the first step in the right direction'.

7_1_S) It is extremely difficult to trust institutions to fairly investigate allegations, given there is little incentive and much to lose if allegations are found to be true. My institution was extremely reluctant to start any form of investigation even with a significant amount of evidence of research misconduct, partly due to the fact that they seemed to have never carried out such an investigation in my department before - lack of expertise and precedent caused delay and confusion as it was not clear what the official route to investigation and resolution was. This appears to track with findings across other institutions (Barriers to Investigating and Reporting Research Misconduct, UKRIO, 2024). Often confidentiality is used as a reason for less thorough investigation (Science and Technology Committee's report on research integrity, published in July 2018 - <https://publications.parliament.uk/pa/cm201719/cmselect/cmsctech/350/35002.htm>). However, this open up potential abuse of policies such as confidentiality and GDPR to avoid investigating serious research misconduct. In my experience the complexity of research, especially in niche fields, makes it extremely difficult to explain what constitutes serious research misconduct rather than questionable research practice. In one example I was witness to, the lack of technical knowledge in the field by decision-makers made it very easy for people who had committed misconduct to claim it was due to lack of understanding or confusion, rather than deliberate deception or obfuscation. To anyone with an understanding of the area it was clear, but there were no such people involved in the investigation at the decision-making level.

8_1_S) Item 2 could be expanded to include concerns about reputation. In an environment where universities are supposed to function like a commercial enterprise and rely on buy-in of prospective students and external funders, harm to reputation appears a main driver preventing the investigation and publicising of possible fraud cases.

9_1_S) Often the persons responsible for academic misconduct allegations change.

10_1_S) Respondents "lawyering up" is a big problem.

11_1_S) Some of the bureaucratic delays/inefficiencies are likely to exist by design in my opinion

12_1_S) The main hindrance to institutions responding appropriately to research misconduct is the desire to cover up the misconduct. Concerns about legal repercussions and due process are minor - institutions have no concerns about legal repercussions or due process when silencing whistle-blowers. Institutions can always find individuals who can deal with the complexities provided they have the will. Other factors are concerns that the institution may have to repay grants awarded for the falsified research and concerns that if one looks at the allegation of research misconduct one might find that within the institution the problem is more widespread and involves bigger individuals.

Free text

13_1_S) The reason for rating 'due process concerns to ensure fairness' as not much of a hindrance, as in my experience the conflict of interest for institutions investigating their own (senior) researchers is so high that there has been no to little concern with fairness. Where there was a concern with 'fairness' this was based on error in process which was completely undeniable and which was only corrected under pressure from a complainant. Even so, a good number of errors in process were ignored. As such, though I can imagine these concerns can play a role at some institutions, at all institutions in my direct experience this has not been the case for both serious or less serious research integrity issues.

14_1_S) There are enough resources - but are they allocated to this problem?

15_1_S) There is conflict of interest also for publishers, who are earning money on the number of papers published. If they were retracting too much, authors will stop sending manuscripts to them. There is conflict of interest also among researchers from the same field, as it is good for everyone from any given research field that many papers are published in that field.

16_1_S) This was an easy one. "Conflict of interest for institutions investigating their own researchers" is IMHO the single determining factor. I could have rated the remaining factors "1" (not much of a hindrance). Of course, the institutions *CLAIM* the other factors are material, but that's rubbish. They could easily deal with these impediments if they wanted to.

17_2_R) From national experience, I know that many institutions face a lack of resources for research integrity governance (as well as for open science, ethics etc.) Large universities and rich research institutions may be less vulnerable to this, but smaller research institutions, university colleges, academic hospitals / medical centers ... have other priorities than research integrity, and their funding is geared towards these other challenges. The lack of resources is detrimental, as it determines the institutional attention for research integrity issues (and hence the expertise buildup, the overall capacity, including the the coordination capacity, the conflict-of-interest-management etc.)

18_2_R) I believe that academic departments must do better in reviewing the 'quality' of their own work, and promoting good quality in research and ethical behavior, rather than focusing mostly on bibliometric results for publications as productivity and otherwise generally being conflict-averse.

19_2_R) I was not sure what was being asked here, is this about all institutions globally or about institutions only in my own country? I have answered as if about my own country.

20_2_R) I wonder if part of any difficulty might be the lack of a universal approach, by institutions, to investigating allegations or research misconduct. Perhaps we need a common framework that every (UK) institution applies (via the Concordat)- at the moment it's a boutique investigation. But, then, each institution has its own ethics committee framework/procedure, too- and those vary.

21_2_R) Lack of coordination in particular in Asia

22_2_R) Neither institutional COIs nor legal risks are hinderances in practice, but institutions may be disincentivized to investigate their high-profile researchers for many reasons, including due to potential legal claims.

As a publisher, both the number of cases and the complexity of those cases has increased exponentially in recent years. Academic institution's bureaucratic processes (and, in some cases, their lack of transparency) hinder journal editors/publishers from correcting the scholarly record in a timely fashion.

23_2_R) the review process is very time-consuming for a small number of people.

24_2_R) We know what needs to be done, and which systems work. The problem is that the academic community is not yet on board as it does not yet realise the scale, or harms, of the problem. As a consequence meagre resources are provided to relatively junior or inexperienced administrators who are given the run around by powerful and intelligent researchers who are often more concerned with protecting their own reputation/ego than the overall reputation of research/science.

25_3_O) All the issues I rated with "2" seem to be mainly administrative and procedural issues which can be overcome with better planning and updating of procedures. Lack of resources could be detrimental, but often times it seems more of an excuse rather than an actual reason as the investigative bodies are not that big and serious

Free text

cases are rather rare. I would instead add "lack of institutional/leadership support" or something similar as a potential factor that could hinder responses to misconduct.

26_3_O) Disaggregating what factors, if any, are hindering institutions' responses from what perceptions are of their role and the factors impacting them would be useful. However instead of factors hindering them, it might be more fruitful to ask what enables them to act, and therefore what the rest of the system should aim to support and promote.

27_3_O) Due process should not be a hindrance if you have effective investigative system and investigators who are competent.

28_3_O) My only evidence is my own experience of being the manager of a university research office, where we managed the research ethics committee for the universities and being involved in developing national procedures for misconduct investigation. The biggest hindrances for research institutions are lack of expertise and ability to manage complex cases, in particular where they rely on ad hoc committees; lack of resources to provide adequate support for standing ethics committees; accepting independent members in the belief that internal committee members do not have conflicts of interest, fear of the repercussions of cases in terms of reputational damage, and a level of secrecy around these that damages coordination with funders and journals. Where clear policies and processes are in place, these mitigate bureaucratic delays and lack of fairness.

29_3_O) My review (xxxx-redacted) suggests that the American story is unique in the degree to which legal concerns drive how universities respond.

Factors driving serious research misconduct

Item 6

What is the impact of these factors in encouraging researchers to commit serious research misconduct? Please rate from 1 (little impact) to 5 (large impact)

Agreement: Here we again collapse responses 4-5. There was general agreement that Publish or Perish culture had a large impact, but a clear divide between Groups S and R for subitems A and B.

Subitem	1_S	2_R	3_O	All
A) Low probability of being detected and/or reported	78.4	39.4	68.0	62.1
B) Low probability of being punished if detected and/or reported	64.9	33.3	44.0	48.4
C) 'Publish or perish' culture and incentive structure in research (e.g. progression, promotion, recognition)	75.7	81.8	84.0	80.0
D) Fear of losing one's job if not sufficiently productive in publishing in prestigious journals	48.6	75.8	68.0	63.2

Free text comments on item 6

Free text

1_1_S) All of the above, but in addition there are institutions where there is a culture of misconduct. I have been involved in cases when individuals were encouraged to commit research misconduct and told how to get away with it by more senior individuals. I have investigated cases where individuals agreed to be co-authors of publications they knew were false and professors claimed they supervised entirely fabricated reports.

2_1_S) Also need to consider direct financial incentives to publish

3_1_S) From observation, it is senior researchers with important positions who are most inclined to serious research integrity breaches - often to gain even more importance, to move to the most senior positions, to gain international rankings, or to support specific juniors in moving up into positions that support their own careers, as such using research integrity breaches for strategic positioning of (slightly) more junior staff members. As such, it is not a fear of job loss driving the serious breaches I have seen, but more about promotion and recognition of themselves, and bolstering the positions of strategic supporters.

4_1_S) I don't think that the culture or fear of losing job is a primary issue driving serious misconduct at all, despite the fact it is often touted as the main reason. I feel this totally misses the point of what's really underlying the problem. From what I've experienced, those who perform serious misconduct are most likely just not living by the same ethical standards as the rest of us, and basically, the constraints in place just don't apply to them (in their view). Motivations of fame, money, ego are also key in this. A pattern I have noticed is that those who engage in serious misconduct don't generally change their ways even when caught and the situation is made public. They adapt their behaviour but they continue. This means that there is a lack of awareness or conscience. I guess there are criminal elements in all walks of life and we have to recognise what that looks like in research, not pretend that for some reason that it doesn't apply in our domain.

5_1_S) I have not studied the psychology of fraudsters and I have not read enough on this topic to have an educated opinion beyond what everyone is saying (and which might of course be wrong).

6_1_S) I note that the first and second factors "low probability" are essentially the same, as are the third and fourth factors (a preference for career over honesty, integrity and the search for truth).

7_1_S) I ranked 'publish or perish' highly, but not because I took it literally. My experience with fraudsters was not that they needed to publish in order to progress their careers. Rather, they wanted to progress up the career ladder as fast as possible.

8_1_S) low chance of discovery and high rewards = rational choice!

9_1_S) Might wanna break out this question by career stage - incentives to commit misconduct likely very different for trainees vs. PI's.

10_1_S) Progression in research roles has been tied very closely to values such as h-index and impact factor. While I cannot share my own current institution's promotion criteria, number of publications and grant funding won is a common requirement across academia. This creates strong incentives for misconduct (Enablers and Inhibitors of Research Integrity, UKRIO, 2024). Fixed term contracts contribute to this concern around producing easily measurable results.

Free text

In terms of low probability of reporting and punishment - in my experience there seems to be some groups where there is unspoken agreement not to investigate things. I do not know if this is to protect institutional or departmental reputations, or because senior researchers may have carried out similar practices previously and do not want misconduct to be highlighted.

11_1_S) Researchers are not at risk of "perishing" and the phrase should never be used.

12_1_S) The literature on criminology (esp white collar crime) has a lot of useful insights into:

Low probability of being detected and/or reported

Low probability of being punished if detected and/or reported

13_2_R) - Systemic issues weigh particularly heavy in China

- Not alluded to here are political agendas to destabilize the West through generating mistrust in core institutions/societal foundations

- Also not alluded to are substantial business interests--e.g., by paper mills and predatory publishers (of course, "reputable" publishers have substantial business interests as well)

14_2_R) - This question is only concerned with researchers operating in an accountability environment (like a university). Paper mills generating fake papers cover a far more prevalent and intentional misconduct, operated by criminal gangs, not researchers.

- The latter two options have the same meaning for me (the last one before tenured a position, the second last for tenured staff). However, the latter "losing one's job is not productive enough" may have a higher accumulated impact, as postdocs looking for a fixed position have less to lose. This is speculation and gut feeling, not evidenced by research.

15_2_R) Again, I was unsure whether this was asking me about my own country or all countries. I have answered as if my own country only.

16_2_R) As a non-academic, I would say that internal / external pressures have a negative impact on researchers and can potentially lead them to cut corners.

17_2_R) I'm not an academic, so do not feel able to answer. 3s given for all answers, as there is no 'no opinion' option.

18_2_R) not just about publishing it is about getting the funding as well.

19_2_R) The grant funding, and problem in obtaining permanent contracts/positions, are two well know perverse incentives that drive misconduct. But increasingly the frankly criminal state of the publication/research dissemination system is driving more misconduct as publishers seek money over the integrity of the research record, and academics play along if it bolsters their CVs.

20_3_O) Entirely publish or perish. And the prejudices that exist in how grant funding is doled out. And how to maintain a salary based on competitive granting without institutional backing, protection, and more support.

21_3_O) Haven and van Woudenberg (<https://link.springer.com/article/10.1007/s10838-021-09555-5>) demonstrate how hard it is to establish causes of misconduct, even where there are apparent correlations with different factors. However, there is much literature that links a 'publish or perish' culture with misconduct (e.g. <https://www.degruyter.com/document/doi/10.1515/jom-2023-0211/html>). This is linked to employment fears for lack of productivity, although such fears apply more to contract staff than permanent staff. For the latter, I think reputation among peers and fear of being judged if not publishing consistently in high impact journal may be a driver of misconduct. The Dutch Research Integrity Survey exposed fear of detection as a mitigating factor (https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0263023&fbclid=IwAR17MW5qz2wpZXQz6crAQVrsDbGsX0DKeE5ZluylywF137rYlf_5hXz1Alw)

22_3_O) I don't have evidence sources that would support replying to these points. Other factors impacting behaviour and decision making, such as bullying and harassment, have not been included.

23_3_O) I rated the last two items lower since everyone needs to work in the same culture and under similar expectations but most of the researchers still do not commit misconduct. Therefore there must be some factors that are applicable only for those who commit misconduct and most likely is related to aspects of motivation or

Free text

personality/character. In my very subjective opinion the formula would be something like: incentive (something to gain) + motivation (willingness) + opportunity (lack of deterrence, lack of sanctions). The motivational dimension is missing from this list.

24_3_O) In addition to the above drivers, I think another main factors is simply pursuit of fame and power. This is not (just) about "publish or perish" but about TeD talks, TV shows, and other rewards for being a top scientist.

25_3_O) In my experience, the most serious cases of research misconduct are committed by established, renowned and highly published scientists. This is not about protecting their jobs, getting promoted or getting more publications, it is about gaining adulation and power.

26_3_O) One of the drivers of research misconduct is poor academic guidance, combined with the immense pressure and intense competition within the academic system.

27_3_O) There is pressure to published in high impact journals and it is becoming increasingly difficult to publish in high-impact journals.

28_3_O) There is so little sound research on this. We really need more good research on research integrity to eventually reach the level of evidence-based policy.

29_3_O) This list reads like a list from an economist assuming rational action. Diederik Stapel's Outpouring (Derailed in English) tells a much more clinical story.

Role of social media

Item 7

On balance, the role of social media in detecting and reporting serious research misconduct has been (select one).

Table shows percentages selecting each option in each group.

(For personalised reports, * denotes your response).

Options	1_S	2_R	3_O
A) predominantly negative - it makes it too easy for vexatious individuals to raise unwarranted complaints, often under the guise of anonymity	2.7	39.4	24.0
B) neither positive nor negative on balance	32.4	39.4	44.0
C) positive - it provides a route for speedy commentary when concerns are discovered	64.9	21.2	32.0

Agreement: No option reached the criterion of 80% agreement, but there was a striking pattern of difference between group S and others, with only group S being largely positive.

Free text comments on item 7

Free text

1_1_S) Currently, social media has been mostly positive in bringing problems to light. However, this is starting to and will change as more people try to either become 'sleuths' without adequate training or will intentionally weaponise scientists.

Free text

2_1_S) Given that social media has somewhat effectively decentralised scientific communication, I think modern sleuthing is only possible because of it. There is more research misconduct now than ever, but there is also a greater frequency of detection of this misconduct (still low, of course).

3_1_S) I had a positive experience with posting online. And publishers do care about their image.

4_1_S) I am going to guess that most complainants, especially those with a high level of integrity, will try to solve the issue internally. However, when this fails, or if a complainant does not feel safe to address things internally, I do believe social media could be a fair 'last resort' - at least it is a resort where all else fails. It may take up resources at the university, but again, these are resources that should be allocated, and if the university has a good standard of practice such reports should be able to be cleared up soon, whether they are unwarranted or not. As such, I would almost say it is positive. However, I do not think social media provides the right platform for discourse, and is likely to harm both reporting and reported parties, as well as giving a platform for unpleasant and uncontrollable forms of escalation. Again, if an institution is not doing the right thing this could be one of the only and last means, but it is an unpleasant one. 'Normal' media with good research journalism would be better, but has less bandwidth and even then can misrepresent. At least social media gives power directly to all parties concerned.

5_1_S) I have not been involved in any social media misconduct allegations myself. Resources such as Retraction Watch (<https://retractionwatch.com/>) are valuable, but with lack of oversight or regulation there is always a risk of retaliatory reports or witch hunts. There has been interesting work into use of social media for predicting retractions (<https://blogs.lse.ac.uk/impactofsocialsciences/2021/08/09/can-twitter-data-help-in-spotting-problems-early-with-publications-what-retracted-covid-19-papers-can-teach-us-about-science-in-the-public-sphere/>), and twitter has allowed for rapid responses to allegations (both defense and offense) in an often very slow process. There is also benefit to raising public awareness, but again there is risk of scaremongering or reduction in public trust in research.

6_1_S) I have put "neither positive nor negative" but I think it is actual "both positive and negative". It does allow speedy commentary but also allows some vexatious complaints. In addition, it does allow propagation of false claims.

7_1_S) I think it is negative, but not for the reason given here. Social media distorts investigations of fraudulent research because it amplifies cases on socially hot-button topics. For example, a paper about gay cruising grounds get disproportionate attention (<https://retractionwatch.com/2021/11/17/elsevier-makes-sand-sun-sea-and-sex-with-strangers-paper-disappear-following-criticism/>), as did plagiarism accusations by Harvard's then-president. Attention is taken from less sensational, but more widespread, cases of fraud.

8_1_S) I think it's great that sleuths like Elisabeth Bik, Cheshire, Dorothy Bishop and Mu Yang have had a strong social media presence, showing the world what's wrong.

But when you think about it, they are forced to use social media, because contacting funders, journals and institutes generally leads to nothing. If these parties would take their responsibilities and provided a clear system to report serious research misconduct, the battle wouldn't have to be fought in public.

The general public might think serious research misconduct happens more often than it actually does (due to the public nature of the allegations) and anti-science voices might use the social media posts of sleuths as proof that science untrustworthy and needs to be defunded.

9_1_S) If you're counting PubPeer as social media.
w/o PubPeer, I don't think just talking about it on Xitter or whatever social media platform would be as effective.

10_1_S) in my experience "vexatious individual raising unwarranted complaints" is rare provided we exclude individuals reacting to allegations and asking for the whistleblower to be investigated (we get that all the time and have twice been the subject of time-consuming, malicious investigations).

11_1_S) It can be both positive and negative for the reasons you gave which is why I put neither.
I have also found that serious scientific journals who publish news can be a very helpful route to getting something taken seriously by journals and institutions, as they all fear media exposure, but as scientists, we should not have to go down this route to get something taken seriously.

Free text

12_1_S) It's a drop in the bucket, often ignored

13_1_S) Of course, PubPeer is an essential resource and tool. More generally social media have been essential to raise attention but also build a community of people interested in these issues who are more and more able to work together collaboratively. We should not however be complacent about the risks and possible future backlashes.

14_1_S) Social media does encourage more colorful commentary than might be desired, however that fact seems to have encouraged investigations when entities involved encountered that commentary.

15_1_S) Unfortunately, I feel that without social media (or the fear of social media), a lot of cases would have never been recognized because of the complete lack of structure to handle and punish misconduct, and the clear reluctance of institutions to act. Without social media, a lot of investigators would simple have no way to attract attention to their suspicions and discoveries.

I honestly have never heard, at the moment, of unwarranted complaints leading to more than minor inconveniences or annoyance. It is true that it's important to remain very prudent as this very well may become a problem in the future, but for now, it mainly feels like an easy line of defense to deflect scrutiny.

16_1_S) Very strongly positive in my opinion. I rarely see vexatious claims, but I do see lots and lots of well-founded and competent sleuthing. Partly this is because I stopped following certain colleagues online. [comment redacted]

17_2_R) As someone whose role it is to support the investigation of allegations of research misconduct, I always encourage individuals to report concerns using the University's formal procedures. Anonymous posts are not helpful - formal procedures exist for a reason.

18_2_R) Beyond the anonymity of most PubPeer posts, and the bullying tone/attitude of many tweets and blog posts (especially xxxxx - redacted) are unprofessional -- and often unacceptable.

19_2_R) I would have leaned positive until recently because some sleuths have used social media in a very effective, skillful and responsible manner. As platforms (especially X) are becoming ever more spreaders of disinformation, I'm now leaning towards the neutral category and am worried that the impacts might become predominantly negative over time as there's a risk that voices of actors acting in bad faith will become much louder than the voices of the sleuths acting in good faith.

20_2_R) I wrote 'neither' but I wanted to say positive because it raises awareness of the issue and allows us to keep the conversation going; also different ways to think about how accountable researchers are in a very public arena.

21_2_R) I'm sitting on the fence. Although I agree with the negative comment - social media has brought to the fore some really serious cases that institutions were sweeping under the carpet.

22_2_R) In my own country context I am aware of a wide number of allegations -- that could be considered to be vexatious -- that take considerable time and energy to address by investigating organisations. While anonymity might have been considered, in years gone by, to afford protection to individuals making allegations from undue repercussions, the more recent culture of social media and anonymous allegations may now be leading to misuse of anonymity and spreading of disinformation.

23_2_R) It has led to a significant rise in reports based on images alone, often with no context at all - which are very difficult to investigate.

24_2_R) It has worked well for increasing awareness among junior researchers in particular, although not really produced any solutions.

25_2_R) It's fair to say that the majority of -if not all- current fraud in my discipline I've read about and discovered via social media

26_2_R) not the proper forum for dealing with misconduct.
Evaluation of misconduct requires a high level of expertise and confidentiality, not to be found in social media

Free text

27_3_O) Assuming social media here means Twitter/x but does not include PubPeer. It would be useful to clarify in the next round. Social media is a communication tool which may be used by individuals for discussions on research misconduct, but the responsibility should still be with the individual. As it is generally unmoderated, there can also be consequences to its use. Encouraging safe spaces to be created where parties can discuss what they are seeing/witnessing/etc would encourage transparency and openness, and care and respect.

28_3_O) Having seen social media discussions on specific articles, I do not think it an appropriate way to 'judge' and highlight. The current systems make it difficult to discern who is and is not an informed party and there is limited moderation

29_3_O) I am a great believer in the positive aspects of post-publication peer-group review on sites such as PubPeer and RetractionWatch

30_3_O) I think that the net effect is positive. At the same time, my read of the 2023 social science story is that journalists are too quick to tell a cute story where they do not really understand what happened.

31_3_O) I've seen instances of both. Trial by social media is unfair, especially when the allegations hold no ground. On the other hand overall probably social media attention have led to many retractions that otherwise would have occurred much later or not at all. So for cleaning the published record I would pick the bottom option.

32_3_O) In my experience, the most serious cases are the least likely to hit social media as institutions and individuals try and protect themselves from poor publicity. What does hit the media is those working to uncover misconduct that institutions and individuals are trying to hide, so predominantly positive.

33_3_O) Or rather both positive and negative, because I would agree with both statements. I guess this is how social media functions, it amplifies negative as well as positive sides of fast exchange of information and ideas.

However, I would also point out a negative side: if discussions of potential misconduct take place in social media, it raises the issue who is setting the agenda and focus. Perhaps the ones responsible for handling misconduct also need to take a more active role in explaining the proper procedure (which is slow) and nuances or differences between serious and less serious (questionable) forms of misconduct.

34_3_O) Social media, including PubPeer is the only major avenue for detectives to post their findings. While these are by default ignored by the relevant institutions, sufficient concerted activity can ultimately trigger an investigation.

35_3_O) The media primarily focuses on naming and shaming individuals, but it rarely engages in discussions about structural reforms or solutions to prevent serious misconduct. However, it occasionally highlights the inertia or unpreparedness of institutions.

36_3_O) There are issues of course, but it has offset the weaknesses in the more formal mechanisms. It is also useful in terms of allowing victims / investigators / those with suspicions, who might not know one another, to connect and thereby establish a pattern.

37_3_O) There are some individuals that have worked tirelessly to raise these issues, bringing much needed attention to a problem that in some areas seems prolific. Those who have detected and reported serious research misconduct on social media have demonstrated integrity despite the risks to themselves. They are often very quick to present the issues in an open and transparent manner - acting far quicker than any institution/journal to 'correct' the record. How can, for example, institutions harness those positives?

38_3_O) This is very difficult to answer. There are so many cases of Twitter mobs ganging up on good-faith researchers (e.g., during COVID) that the positives are overshadowed. So on balance social media are terrible for this sort of thing because hysterical outrage in most cases is entirely misplaced. There may be some cases of cogent allegations that turned out to be meritorious but I don't see social media as a good place to debate these issues.

39_3_O) While social media is certainly unregulated, and so can provide a platform for vexatious complaints, it can also quickly alert the research community to problems in publications.

Reporting serious research misconduct

Item 8

Official channels for reporting misconduct are often slow and obstructive (select one option).

Table shows percentages selecting each option in each group.

(For personalised reports, * denotes your response).

Options	1_S	2_R	3_O
A) Strongly agree	73.0	18.2	24.0
B) Moderately agree	24.3	45.5	40.0
C) Neither agree nor disagree	2.7	18.2	36.0
D) Moderately disagree	0.0	9.1	0.0
E) Strongly disagree	0.0	9.1	0.0

Agreement: For all groups, the overall trend is to endorse this statement, but support is markedly stronger for Sleuths. If we collapse A+B, then, sleuths have 97% agreement.

Free text comments on item 8

Free text

1_1_S)

<https://www.transparimed.org/single-post/transparimed-files-ethics-complaint-over-unreported-cancer-trial-result>

2_1_S) Based on experience with numerous publishers and editors, institutions and COPE. Just a few motivated individuals are different.

3_1_S) Clear-cut cases of photoshopped images often remain in the literature without as much as an expression of concern. stakeholders often hide behind protocols and guidelines, such as the COPE guidelines. These protocols and guidelines have been often put in place by the parties themselves, which should make it very easy to change them if they feel they don't work as intended.

4_1_S) I could write a book about this.... I have published papers on the topic but that would identify me.

5_1_S) I have found that they are slow, but I also found that the investigations were thorough and careful. So the scientists tasked with looking at issues do a very good job, but it's once it gets to the institutional level where it all breaks down. Then the concern switches away from the facts of the case to the reputational issues and COI. Huge problem.

6_1_S) I have tried reporting misconduct anonymously only to have it swept under the rug. Then I talked to a journalist and suddenly there was a flurry of motion.

7_1_S) I wish my pubpeer comments would directly send emails to EiC and institutes

8_1_S) I would rather report a lack of specific personal experience.

9_1_S) In my experience with raising allegations, the system was not deliberately obstructive, but the process was confusing and not well laid out. It was also extremely slow. When serious research misconduct was reported at my

Free text

institute, it was assumed the allegations were handled at the time, and the lack of formal response was due to the issue being handled internally. It came out over a year later that not only had the allegations not been passed to those accused of misconduct, but an internal regulatory group had been misled, including fabrications around what had occurred during the reported incident. When a more formal complaint was raised, it took over 4 months for any kind of resolution.

10_1_S) It can go both ways. Willing editors can act very quickly and effectively if they are willing (example: the coordinated investigation of Jonathan Pruitt). But in other cases, editors, publishers, and COPE interlocutors can drag their feet for years without doing anything.

11_1_S) It depends on the publisher or institution but in general it is very slow.

12_1_S) Just finding out who the RIO is at a given institution is nigh on impossible.

13_1_S) Plenty of personal evidence as well as testimonies, mostly in France.

14_1_S) Strongly, Strongly, Strongly Agree - don't ask, don't tell!

15_1_S) That is my overwhelming experience in a large number of cases I reported.

16_1_S) The lack of transparency makes this difficult to know for sure. When I report concerns, I only get a automatic "thank you for reporting..." response from a small minority of entities; most say nothing. After that, when nothing occurs for years, it isn't clear that anyone even looked into my concerns.

17_1_S) The silence and covering-up culture is still strongly present and there is very limited protection of the whistleblowers while the retaliation is very common and the consequences on reporting could have enormous consequences on career and health.

18_1_S) They are also confusing. Who knows who to contact?

19_2_R) agree to slow
do not agree to obstructive

20_2_R) Although I agree that formal processes can be long and drawn out, there are usually good reasons for this - such as the need to ensure fairness and the prevention of detriment. One case I was working on involved the submission of over 350 pieces of evidence, which took time to review and assess. Universities are also reliant on senior academic giving up their time to participate in investigations, which is difficult to fit in around other roles and responsibilities. Finding external panellists to participate is also challenging and time consuming.

21_2_R) As a publisher, it can be hard to (help journal editors) identify institutional contacts, particularly at hospitals (vs academic institutions). Perhaps a master directory could be created?

22_2_R) I agree that they are slow. I have witnessed procedures that took 3 and 4 years at the university, before coming to the second-advice national system, which added another half a year. But I wouldn't call them obstructive, as official investigation procedures are the only channel delivering a high authority report.

23_2_R) I chose the neither/or because I have no direct experience of reporting fraud to editors. In my University role, this was one of my responsibilities but it was not one that was tested.

24_2_R) I have commented from my own country context only. I am unable to pass comment on other contexts/countries.

25_2_R) I'm biased because I carry out the investigations; but will concede that people find them obstructive and slow because indeed they are slow as we need to consider many aspects, find experts, interview people etc. there is no obstruction built into the system but the slowness can be interpreted as such.

26_2_R) not sure what is meant by this question. There is a defined path for REPORTING misconduct. It is the evaluation process that is quite protracted, but not obstructive.

Free text

27_2_R) Often the slowness and obstructiveness comes from researchers themselves who see processes as a direct attack on their egos. The two slowest research misconduct investigations I have contributed to were significantly impeded by researchers employing legal representatives at a very early stage - in both cases the legal help turned out not to be needed, but slowed the investigations down by six months to a year.

28_2_R) Recruiting appropriate individuals to sit on panels can often slow down proceedings, and then managing availability. Some of the delays here are difficult to manage in advance.

29_2_R) We have one channel for reporting and we deal with it straight away.

30_3_O) I find official channels slow but less obstructive than they used to be. Guidance is clearer, funders and journals are more open about what is and isn't problematic and how to deal with it, so the option for institutions to bury things (although still their first impulse) is reducing over time.

31_3_O) I have limited experience with this, however the issue is not in the "channel", but rather the quality of the information and how much resources are available for dealing with the cases. However, I know at least one instance where the channel doesn't function (at least not as intended) due to redundant steps (a high level official needs to screen the reports).

In general, I think there should be a difference between the speed of the final procedure (which can be long) and how responsive the procedure is. I agree that sometimes the channels could seem slow and obstructive, but perhaps it is due to lack of transparency and communication once the report has been handed in.

32_3_O) I have never reported misconduct and I am unaware of the process even given editorial roles and institutional research leadership roles.

33_3_O) I have not had personal experience in reporting. From seeing colleagues trying to do this, there is sometimes a fear associated with raising a concern without anonymity as they are concerned for the impact it may have on their career if raising concerns about more senior players in their own field

34_3_O) I think that they have good legal reasons for their slowness, but that does not morally excuse them for the harm that they create as a result of their slowness.

35_3_O) If by official channels you mean HHS_ORI or equivalent, the channel is indeed slow and rarely leads to meaningful action.

36_3_O) Institutions lack an oversight structure to address these problems.

37_3_O) Recently the Netherlands Code of Conduct of Research Integrity was evaluated. One of the findings was that most standing committees struggle with the fact that most complaints have nothing to do with research integrity, but concern academic disagreements, labor conflicts, power abuse, financial fraud, malicious intentions, sexual harassment etc. See: <https://storage.knaw.nl/2024-07/Adviesrapport-Evaluatie-Nederlandse-gedragscode-wetenschappelijke-integriteit-2024.pdf> (Dutch with English summary).

38_3_O) The answer to this question is dependent on the policies and processes in place in institutions. An example is the procedure for investigation of misconduct developed by the Irish National Research Integrity Forum, which is implemented by its signatory institutions in Ireland (all institutions) - <https://www.iaa.ie/wp-content/uploads/2019/08/Guidelines-for-RI-investigations-FINAL-17-08-16-1.pdf>. This stipulates the timescale for investigations. The European Code of Conduct for Research Integrity also extols that misconduct investigations should be fair, comprehensive, and conducted expeditiously, without compromising accuracy, objectivity, or thoroughness (https://ec.europa.eu/info/funding-tenders/opportunities/docs/2021-2027/horizon/guidance/european-code-of-conduct-for-research-integrity_horizon_en.pdf). Where institutions have no clear guidelines and processes in place, there is always a danger of slowness, and indeed destructiveness in situations where the institution does not want to acknowledge the misconduct.

39_3_O) The system needs a process that is as fast as possible but as slow as necessary to make sure that careful and thorough investigation occurs. Obstructive sits separately to this.

40_3_O) Very dependent upon the institution, the institutional culture and the institutional leadership.

Models for addressing serious research misconduct

Item 9

In an ideal world where resources are not an issue, which is the most suitable model/system for addressing serious research misconduct?

Agreement: There was no agreement on this item by any group - all options had some support. N.B. This was an item where respondents were asked to rank responses, with 1 being the most preferred. This table shows the percentage of respondents giving a ranking of 1.

Subitem	1_S	2_R	3_O	All
A) Self-regulation approach, where academic institutions are responsible for conducting investigations and determining sanctions when one of their staff is accused	21.6	21.2	32.0	24.2
B) National governance approach, where government regulatory agency is set up for this purpose	21.6	15.2	20.0	18.9
C) National guidelines approach; for example, UK's Committee for Research Integrity, which does not have a regulatory role, but aims to ensure all institutions work to a common framework	18.9	33.3	24.0	25.3
D) Regulatory agency independent of Government	40.5	24.2	24.0	30.5

Free text comments on item 9

Free text
1_1_S) As indicated before, I would in general prefer to move away from punishing the guilty to fostering systems that promote quality within research institutions. But the way things are now, I believe it is better if an external agency gets to investigate misconduct than for universities to do it internally, because of the inherent conflict of interest.
2_1_S) DWP prosecutes benefit fraud, police go after credit card fraud. MHRA can prosecute for breaking regulations. Research fraud steals from people. It can't be left up to universities or weak quangos.
3_1_S) Guidelines are nice, but reinforcement is needed. Governance on a national or institutional level can lead to a very heterogeneous approach with widely variable outcomes for similar issues. This does not help the scientific record.
Since science is an international endeavour, I feel that an international regulatory agency would be best, with stakeholders from different scientific backgrounds, different scientific roles and different continents.
4_1_S) Ha Ha! Leading the witness with the third, but 1, 3 and 4 are all pretty hopeless IMHO.
5_1_S) I believe all four are necessary - generally universities should be responsible for the first level of investigation and accountability, including according to their own and national guidelines (thank you for existing UK CORI/UK Universities). However, as observed there is a rather significant bias of universities towards protecting their researchers from being shown to have breached research integrity (whether due to reputational damage to the university or due to fear for legal repercussions from the researchers involved), and as such a preference for universities to breach their own integrity in favour of hiding senior researcher integrity breaches. Because of this, it should be possible for individuals to escalate cases to a separate regulatory agency. This agency could possibly also help universities in cases of legal escalation. Whether this agency is situated in a national governance

Free text

approach or is independent I could not really judge the value of, but can imagine there is a higher chance of a conflict of interest in a government regulatory approach (different views welcome).

6_1_S) I believe that a body similar to Health and Safety Executive is required, because the HSE can bring criminal prosecutions. I would want a national body that can bring criminal prosecutions for serious research misconduct.

7_1_S) I do not think there is an ideal solution to this presently; a state-entity solution would mean potentially inconsistent enforcement across countries; an independent regulatory agency may find itself stretched too thin/bumping against international legal issues; self-regulation by universities has clearly to date failed. Ideally, I would like to see self-regulation by universities, and with meaningful consequences delivered to universities who fail in their duty to limit misconduct (e.g., financial restrictions from funding agencies). Ideally regulation would be similar to in industry: where corporations do in-house quality control while also being held accountable by state regulatory agencies.

8_1_S) I suspect most working in this field would prefer a government regulatory agency. I suspect that this agency will be ineffective, under resourced, and politicized. I would prefer a self-regulatory regime financed by research institutions, somewhat akin to the way Financial Industry Regulatory Authority (FINRA) works in the finance industry in the U.S. I think research institutions might consider some sort of audit system for each other.

9_1_S) I would not trust that institutions are capable of handling these internally in an impartial manner under the current incentives and systems in place. Additionally, the national guidelines approach carries risk - while my institution has created a research integrity policy based on the UUK Concordat to Support Research Integrity (2019), in many cases the language was found to be confusing and open to interpretation during an actual misconduct investigation. Something similar to the Norwegian model, which uses guidelines in combination with National Committee oversight, is sometimes recommended (<https://www.forskningsetikk.no/en/resources/the-research-ethics-library/legal-statutes-and-guidelines/the-act-on-ethics-and-integrity-in-research/>), although there has not yet been proof of efficacy (Questionable Research Practices and Misconduct Among Norwegian Researchers 2022, Science and Engineering Ethics, Volume 28)

10_1_S) Independent from institutions. UKRIO have not been able to be strong enough and CORI have also been weak so far as they won't take on a regulatory role. We desperately need regulation in this domain, and serious research misconduct should be criminalised properly (I guess it would be if the institutions reported it?). We should stop using excuses about fear of eroding trust and just get on with it and step up and stop being weak about all this.

11_1_S) Most important (in the ideal world) is removing the incentives that drive the research misconduct.

The direction of the scale has changed from previous scales. Now I'm worried how many previous pages I answered with the wrong polarity.

12_1_S) The national guidelines item is of a different nature to the three other options. National guidelines are a necessity independently of which organization does the investigations. I have done a ranking but again, different countries and institutions have different traditions and it is not obvious that one size fit all makes sense. And there could be other options or combinations of options, e.g. self-regulation but with a possibility of an appeal to a regulatory agency.

13_1_S) The publishers should take responsibility. Governments should regulate publishers - not researchers - if it can be proven that they knowingly ignored fraudulent research and failed to act in a transparent way to credible charges of fraud. This will be difficult because these are multinational companies, but regulation could come from the government where the publishers if headquartered (similar to regulations for media companies)

14_2_R) - As far as I see, these options are not exclusive. In Finland, Netherlands and Belgium, a genuine two-level system is in place, combining self-regulation by institutions with second advice possibility by a national-level system. National guidelines are consistent with self-regulation as well.

- It is hard to discern regulatory agencies "of government" and "independent from government". They are anyhow publicly funded, even if they are established by the research community. The key difference is probably the level of legalization / juridisation, when these Boards are part of the state apparatus, to comply with all transparency standards, like in USA, China or Denmark. This is not advised, as it turns away the attention from the core

Free text

(deviation from good science) to procedural matters, as noted in the Evaluation of the Dutch Code of Conduct for Research Integrity (June 2024, findable online)

15_2_R) As universities are always accused of conflicts of interest in 'marking their own homework', I have suggested that an independent body could be useful in restoring trust. However, there would still be a resource implication for universities in liaising with investigation panels and providing information.

16_2_R) I think that academic institutions should educate and promote good research practice (and good ethical conduct), and be active in assessing own activity, but they cannot formally investigate themselves in a reliable way. External assessors are needed to try to make that kind of process as objective as possible.

17_2_R) In my opinion, approaches that rely primarily on self-regulation are inherently deficient because institutions inevitably face a conflict of interest that internal procedures hardly can address effectively. Some form of delegation, therefore, is - in my opinion - preferable. Which delegation model is best depends on institutional design. An independent agency presumably is best able to serve as neutral party, if it has a clear mandate as this model minimizes conflicts of interest. A national governance approach, by contrast, could make an agency vulnerable to political pressures. If a model could be devised that credibly insulates an agency from such pressures, a national governance approach could be highly effective, too (especially in countries where public trust in official institutions is high).

18_2_R) Institutions are too varied, and have too many conflicting interests, to do this properly as the current situations demonstrates. An independent ombudsman/adjudicator as in other countries would probably be fairest, and most efficient.

19_2_R) Institutions are ultimately accountable for their employees. Despite inconsistencies across institutions, they are still best equipped to investigate researcher misconduct. Another organization/agency would only create an even bigger bureaucratic burden (in terms of cost, inefficiency, etc.).

I was surprised by recent publication ethics case, where a specific institution said they couldn't investigate the alleged misconduct. The author was employed by that institution when the research was conducted, but not by the time (only a few months later) when that research was published.

20_2_R) National standards would be helpful.

I expect most institutions have the internal expertise and knowledge to handle individual cases most efficiently.

21_2_R) The question asks for preferential rating for each but I think this is more usefully explored by comparing each and choosing the best (which I have done here)

22_2_R) Why does question 1 ask about 'sanctions' when one of their staff is 'accused'? Surely sanctions are only appropriate if an allegation is upheld, not if someone is accused.

23_3_O) A lot of these investigations require local knowledge and so they are best handled by the institution involved. However, to ensure independence, the investigation should also include independent external participants (e.g., academics or experts from another institution).

24_3_O) An independent regulatory agency may be the most palatable for institutions, who generally resist government interference, and would be my preferred choice. Having national guidelines has also proven effective in many European countries and ensures consistency across institutions in the policies and processes they develop for handling misconduct. The least effective means of managing misconduct is self-regulation. This is rife with problems such as conflict of interest, obstruction to protect institutional reputation, and lack of opportunity for standing or ad hoc committees to develop the skills and expertise necessary for fair, comprehensive and trustworthy (credible) investigations.

25_3_O) As long as there is not significantly increased administrative bloat, this would be preferred. But if reporting = +++form work, that is never fun.

Free text

26_3_O) Further research on what would work in the UK is needed. See cross sector working group details with further information forthcoming from Rand.
<https://ukcori.org/our-work/addressing-poor-research-practice-and-research-misconduct/>

27_3_O) I strongly believe in self-regulation, we really should do a better job. Once government, politicians and laws come in, handling allegations becomes a legalistic game with legal counselors on both sides. We should avoid that and use it only for massive financial fraud or issues that concern criminal law. Like in the medical field self-regulation keeps the focus on the content of the case (as apposed to procedural hair splitting) and maximizes the likelihood that something is learned that helps to prevent future cases.

28_3_O) I work in a system that adopts the first. It does not work!

29_3_O) In the American context, I think that this needs to be affected by the funding source. But, regardless of the answer, I think that Universities should take action based on misconduct by their faculty.

30_3_O) Just a remark, but in this question the positive-negative axis is inversed: the most negative value is on the right, 4 is least preferred. This could cause some confusion, unless it is intentional and fulfills some additional purpose.

I guess this is also a question of personal values and ideals about "good governance". In my personal view, high concentration of regulatory and sanctioning power always causes more problems in the long run and decentralised models are more resilient. Also, if we want to change the research culture, then we need to empower those who are at the institutions and in the position to do so.

31_3_O) Only an independent organization can monitor and implement measures that are meaningful.

32_3_O) This is a difficult one. In my experience, outside agencies are impartial but they also often fail to understand the situation and investigate it appropriately, whilst internal agencies start by assuming there is no misconduct and do everything they can to prove that. And both outside and internal agencies are obsessed with single step investigations (hear one side, hear the other side, make a decision) that they fail to recognise that this will lead to biased and (possibly) incorrect judgements. They fail to share documentation with each party, they fail to check inconsistencies and lies, and they therefore make their decisions based on partial information. This is why courts of law work the way they do (allowing each side to cross examine and allowing each side to see the evidence). Having said that, internal

33_3_O) While we would hope that researchers would self-regulate, this is probably not practical for the reasons described previously of why misconduct occurs. An agency independent of the government would be ideal given for things to happen timely and have adequate participation from researchers.

34_3_O) With a preference for a national guidelines approach there must however be a clear route to sanction that is overseen with an external body to prevent institutions from not acting in accordance with the guidance

Role of employers

Item 10

Prospective employers should undertake rigorous due diligence and, as far as possible, check with previous employers to ask if there have been any investigations into serious research misconduct.

Table shows percentages selecting each option in each group.
(For personalised reports, * denotes your response).

Options	1_S	2_R	3_O
A) Agree	78.4	75.8	80.0

Options	1_S	2_R	3_O
B) Neutral	13.5	12.1	12.0
C) Disagree	8.1	12.1	8.0

Agreement: Endorsement of ‘agree’ was relatively high for all groups, but exceeded 80% only for group O.

Free text comments on item 10

Free text

1_1_S) Asking about "investigations into serious research misconduct" would include allegations that were not proven. People are and should be innocent until proven guilty.

2_1_S) Easy to implement step, but the problem is that possible problematic employees could try different employers until they find one that isn't rigorous enough. Prospective employers should be able to warn others to prevent them from hiring bad actors.

3_1_S) I would like there to be a database of individuals found to have committed research misconduct, which could be checked rather like a criminal records check.

4_1_S) I'm on the fence about this. Prospective employers should investigate, but they don't have to do it so rigorously, as the assumption is that most people are honest. But including a grain of salt when reading CVs is probably good advice.

5_1_S) In the US there needs to be a reporting requirement along the lines of Title IX (sexual misconduct), where institutions are required to report findings and they're available in a database.

6_1_S) Just like asking former employers in private industry about an employees past employment record, there are too many legal consequences for this to work well.

7_1_S) Prospective employers would have to be prepared to do this properly - understand the circumstances and outcome of the investigation - for this to be worth pursuing.

8_1_S) Rather they should check the quality of the work of the prospective employee and see if it appears to be robust

9_1_S) Scientists publish their work. If they commit serious research misconduct, that should lead to retractions of their articles and therefore it should be visible to all, including potential future employers. Also, the question should not be about "investigations" but about findings of serious research misconduct. Someone who has been falsely accused (for example in retaliation for reporting real misconduct) should not be penalized because an investigation against them has taken place.

10_1_S) The focus should be on deterrence and preventing misconduct happening in future. Due diligence may include checks for retractions, but making investigations publicly available regardless of outcome may leave the door open to misuse of reporting systems.

11_1_S) There should be a register of upheld misconduct, as ORI do in the US, publicly available. If not, why not?

12_1_S) This could potentially have a negative impact for a researcher who was part of a team where misconduct was discovered.

13_1_S) Yes and no. Prospective employers should do this anyway, but there are a large number of comments on this:

- investigations can say something about the complainant, the respondent, and the investigators; so even if you know an investigation has taken place, whether this tells you anything is questionable. Even if the outcome is known.

- most behaviour goes unreported and uninvestigated. At the senior level there will be less knowledge on goings

Free text

on than at the junior level.

If you check with anyone, check with previous juniors, though again, the answers and reality might not overlap - there is large variation in how juniors get treated, and those exposed to research integrity breaches are highly unlikely to report to an interviewer, whether they have reported it to the institution or not. Possibly find previous juniors who have now left academia... Though that would be a specific selection too.

As such, sure, do the check. It would give some extra information, but be aware of how much this actually does/doesn't tell you.

14_2_R) A standard statement could be developed by EUA, EARMA, ENRIO and other players, setting the bar.

15_2_R) Agree - but we should also be mindful of the principle of the prevention of detriment where an allegation has been unproven, or the case has been dismissed as vexatious / malicious.

16_2_R) An investigation might take place because of a vexatious allegation, it would not be normal in any field to expect that the existence of an investigation should be revealed. I think information sharing should only take place if an investigation demonstrates that misconduct has taken place, but such investigations should therefore take place with appropriate speed.

17_2_R) I don't think we can rely on this, however.

18_2_R) in the same way we disclose elements about sickness leave etc we should be made to disclose any allegations of research misconduct and the outcome. this would help normalise the discussion.

19_2_R) Investigation does not necessarily mean that there is fraud. If an investigation has led to a verdict of guilty of fraud, then I would have ticked Agree.

20_2_R) Not investigations - but whether any findings of serious research misconduct were upheld, yes.

21_2_R) Prospective employees should undertake rigorous due diligence, but they can do so without checking with an individual's previous employers. There can be serious HR/legal risks to previous employers of potentially infringing upon someone's professional livelihood.

22_2_R) There is a GDPR conflict here. There is also an unfairness bias- there may have been an examination but the outcome may have been negative. The stigma, I suggest, would be real and influential to an employer.

23_2_R) There should be a legal obligation on employers to ask for, and receive, a confidential statement from previous employers relating to historical research misconduct.

24_2_R) This has been discussed informally by research support professionals in this area; one of the key concerns raised regarding this approach relates to data protection and the legality of doing so.

25_2_R) This would indeed be important as researchers found guilty of research misconduct often can continue their career unimpeded in other countries without much consequences. A researcher found guilty of serious misconduct in the most prominent case in the country where I am based, continued his career without any serious consequences in a different country after being fired from the university where the misconduct had occurred.

26_3_O) However, I have known of a case where the new employer was informed and they still decided to go ahead with the employment. They are balancing the negative against all the positives (internationally renowned academic with publications for the REF and funding).

27_3_O) I agree. In reality, GDPR aspects make this nigh-on impossible in reality.

28_3_O) I tend to agree but see a lot of problems with this procedure. Firstly, there are legal/regulatory reasons why sharing such information could be challenging (confidential data, protection of privacy and good reputation). Secondly, it would create an unfair advantage to those candidates who come from universities where preventing research misconduct was not a priority as they would have a "clear" background, whereas honest researchers who have "marks" on their resume (for instance, investigation into questionable practices at the last employer) would instantly seem less preferable. Also, there have been cases where candidates to research positions have intentionally faked their CVs or obtained fraudulent academic credentials which could complicate such checks even further, especially where foreign institutions are in play. There have also been concerns about malign foreign interference in such cases.

Free text

If such check were introduced, these should check for all signs of fraudulent activity, not only whether misconduct investigations have been launched against the person. However, in that case these checks would be very time consuming and require a lot of resources.

29_3_O) I think that there needs to be a basis for such intrusion. I also see multiple cases of innocent people being wrongly harmed by institutions viewing anyone near a fraud story as contaminated.

30_3_O) In addition the outcome of the investigation would be pertinent - should be made available by referees/ findable.

31_3_O) Many times, allegations and investigations are not discussed but serious research misconduct investigations need to be reported to avoid continuation of this behavior.

32_3_O) Might be beneficial to separate out an ask for information from the ability to share information. Also consider that people have a right to be forgotten.

33_3_O) The 2017 Science Europe Workshop Report on the implementation of research integrity policies recommends that

"When a person applies for a research position (including from another country), it is the responsibility of the hiring institution to satisfy itself that the candidate has not been found guilty of research misconduct, nor is the subject of an ongoing investigation –

for example by asking the candidate or their current employer. Research Integrity Offices might also be useful sources

of information." https://scienceeurope.org/media/lfme4ev/ws_report_integrity_practices_policies.pdf.

That said, it can be difficult in practice to identify researchers who are 'institution-hopping', and declarations by candidates for hiring are not routinely used.

34_3_O) There are also opportunities to use open-source research of social media to determine any 'red' or 'amber' flags. I am surprised this does not happen more often.

35_3_O) This is critical, but as far as I have seen these investigations are kept secret. Offenders tend to jump from place to place, especially if they are "productive" and famous.

36_3_O) This should be a specific question requested of previous employers as part of a reference/application process

37_3_O) What are the legalities of this? I agree it is important to establish a track record but is it legally permissible?

38_3_O) With proper checks and balances of course. Currently it's very easy to move on to another employer who is unaware of the research misconduct.

Item 11

Employers, funders and publishers of research should be legally required to share information to support investigations of serious research misconduct.

Table shows percentage selecting each option.

(For personalised reports, * denotes your response).

Options	1_S	2_R	3_O
A) Agree	78.4	75.8	84.0
B) Neutral	21.6	21.2	12.0
C) Disagree	0.0	3.0	4.0

Agreement: Pattern of responding was similar to item 10: general agreement with the statement, but less than 80% for groups S and R.

Free text comments on item 11

Free text

1_1_S) A no brainer!

2_1_S) Hard to enforce with foreign based actors

3_1_S) I would have criminal sanctions for individuals who covered up research misconduct and punitive fine for organisations (employers, funders and publishers).

4_1_S) In line with my text in the previous text box.

5_1_S) Just like asking former employers in private industry about an employees past employment record, there are too many legal consequences for this to work well.

6_1_S) Only gonna work if mandated at government level and tied to funding... "if you want this grant, here's what you have to do".

7_1_S) Share publicly, including names of those where it has been upheld, as already done in the USA and Sweden!!!

8_1_S) This is tricky. While ideally this would be the case, I can see this being greatly misused for political purposes.

9_1_S) This may be difficult to regulate so it does not conflict with previously mentioned confidentiality issues (UK Science and Technology Committee's report on research integrity, 2018).

10_1_S) Transparency is essential to fight corruption in general and in this setting

11_1_S) Whilst appearing attractive, I fear that this would actually inhibit accusations/investigations; legislative enforcement has significant implications. I also doubt this would be enforced.

12_1_S) Why stop there? They should be legally required to share information about research for any reason.

13_1_S) Yes. Absolutely. Even on a normal regulatory level some of this is missing - looking at publishers specifically, who have a very, very broad set of interpretations even if they (claim to) fall under/comply with COPE.

14_2_R) 11a Not quite sure what this means. Again, there are correct and important GDPR protections.

15_2_R) Again though, only sharing of information about confirmed findings.

16_2_R) I agree, although lessons should be learned from the education/child protection sector relating to the damage that false allegations could cause if this sort of route is pursued.

17_2_R) I would say that they should be regulatorily required rather than legally required. What matters is that the requirement is sufficiently binding. In countries where research is mostly governed by soft law, a legal requirement could be a poor fit to the overall governance system and thus be difficult to implement effectively.

18_2_R) Legal issues are an obstacle

19_2_R) Medical researchers should undergo a similar degree of scrutiny as clinicians for the purpose of protection of the public

20_2_R) Neutral here as it depends on what information is required and sharing should only be of relevant information, which was not stated in this question.

21_2_R) Such a requirement is not possible, plus most publication ethics issues are not actually legal matters.

Free text

22_2_R) They should share information to support investigations, that is clear. All instruments and guidance that may help them to do so, should be applauded. I'm not sure if a legal requirement would be very beneficial. It could contradict other legal requirements and put research integrity investigations further in the sphere of legality, which is to be avoided.

23_2_R) Universities do this already.

24_3_O) Absolutely vehemently agree with this. I've seen journal articles refuse to retract papers that clearly contain serious misconduct because they are afraid of being sued.

25_3_O) As long as this does not become means to create a new version of academic bullying. Public record is public, and sometimes the accusation is remembered more than the verdict.

26_3_O) As per the final sentence above, this would make it a lot easier to identify applicants who have not been honest about their research integrity history.

27_3_O) Creating a framework that enables better communication would be useful, a legal requirement to share information may be too blunt of an instrument. Cross-sector working group findings will be an interesting source of evidence for this question.

28_3_O) I would say that institutions should cooperate and shouldn't impede investigations. However, such a legal obligation would also require that there exists a proper investigative body that is transparent in its dealings and well trusted in the academic community. Also this legal obligation should be tied to only this trusted investigative body, it cannot be a general obligation to help any institution who decides to investigate misconduct. If an "investigation" is launched at an institution in an unfriendly country (for political reasons) and they ask for certain information and documents about some researcher, then clearly there shouldn't be an obligation to provide any information to them.

If such an obligation were to be implemented, it should be minimal and well thought through.

29_3_O) See above. This requires a legal framework.

30_3_O) This requires changes to national and international legislation.

Solutions to serious research misconduct

Item 12

Given that we have finite resources, which solutions to serious research misconduct should be prioritised in funding? Rate the following options from 1 = most preferred, to 5 = least preferred

Agreement: No item/group combination exceeded 80% agreement (with data collapsed to a 3-point scale). This table shows percentage rating 1-2 (i.e. most preferred).

Subitem	1_S	2_R	3_O	All
A) Changing criteria for hiring/promotion/funding away from publish/perish model, so that researchers won't be motivated to commit fraud	37.8	42.4	56.0	44.2
B) Research ethics training for all researchers	32.4	54.5	20.0	36.8
C) Funding/training of research integrity officers	32.4	48.5	28.0	36.8
D) Infrastructure to collect and report on serious research misconduct nationally	43.2	36.4	48.0	42.1

Subitem	1_S	2_R	3_O	All
E) Support for individuals/organisations who have expertise in detection of serious research misconduct	54.1	39.4	44.0	46.3

Free text comments on item 12

Free text

1_1_S) Again, this ranking is based on experience. Most people working as research integrity officers are university researchers and smart enough to understand research integrity regulations and be able to read through university/national/etc regulations to ensure proper compliance. Should they be unable to do this, not just their suitability as a RI officer but also as a researcher should be questioned - RI cases are after all much like investigative research. I do not advocate to not invest in this position, but state that with limited resources one should be able to assume that someone appointed to this position is capable of carrying it out in an adequate manner as part of their job tasking.

Similarly, I would be surprised if those breaching RI in a serious manner are not aware of it - there is a lot of information on it and being aware of these regulations is a researcher 101. However, it would be good to ensure that all researchers are aware of their duties, giving juniors in research the knowledge to protect, and stand up for, themselves and others.

What is sorely missing are the two I ranked first.

Changing the criteria for hiring/promotion etc - great! Very important too, but how? Solving this question will take a while and the answer is very unclear, whereas creating infrastructure and supporting expertise in RI could be done right away.

2_1_S) Collecting information and reporting is the only one I like. Can we name and shame those involved?

3_1_S) Criteria changes for reward models are entirely within the ability of both institutions and academia at large to change. Encouraging open science practices such as data sharing and preregistration promote research integrity (Enablers and Inhibitors of Research Integrity, UKRIO, 2024) and should be rewarded.

Open science promotes transparency, and its practices should be considered a strong defense against serious research misconduct, as it removes the opportunity for deception or obfuscation. Many of the suggestions for incentivising open science could also be applied to promotion/funding criteria changes aimed at reducing research misconduct (Perspectives on the future of open science, European commission, 2021)

4_1_S) Difficult one.

Changing criteria is definitely the way forward to make sure as few as possible NEW cases of misconduct come into the arena.

I also think that making sure that serious research misconduct is found and reported, will make it less appealing to potential problematic scientist to start (or continue) with the misconduct.

I research integrity officers can be important, but they cannot do much if nobody is reporting problems.

Basic ethics training programs need to stay in place but they probably don't yield results if the incentive it to produce as many papers as possible. You basically guilt-trip researchers by first saying there are clear rules in place for going good science, but then show them that it is impossible to climb to the top when they obey those same rules.

5_1_S) I initially ticked the boxes all arsey-versey because of the scale polarity changing between questions.

6_1_S) Item 1 (criteria) seems great on paper, but what do you replace it with? We have to measure <i>something</i> and there is a lack of alternative metrics. It's beyond the scope of an exercise such as this to design and deliver new research performance metrics. Whatever you end up choosing as a metric, it's a matter of time before people figure out how to "game" it (Goodhart's law).

7_1_S) Other option: support for researcher training so that researchers can recognize possible signs of research misconduct in their fields and avoid relevant papers.

Free text

8_1_S) Research ethics training would not be worthwhile, I think. Those who commit serious misconduct know that it is unethical. Our focus should be on incentivising/reinforcing good research practices and disincentivising/punishing (in the behaviourist sense) misconduct.

9_1_S) Sorry, my choice above is semi random. We can't do without all the items in this list. But I would expand on "changing criteria..." - I think "researchers won't be motivated to commit fraud" is too simplistic in many ways and also that there are plenty of very good reasons to change our research culture, beyond the regrettable incentives to commit serious research misconduct. How does the massive production of meaningless articles (containing serious research misconduct or not) helps us addressing the major challenges that face humanity?

10_1_S) The key things are detection and punishment of offenders, plus sanctions on institutions where offenders worked. If institutions face large enough sanctions they will police themselves, but there needs to be the threat of external regulators with powers to compel cooperation. Collecting data is meaningless unless we have proper detection, because the data collected will be worthless. I believe all researchers should get training in research ethics but do not think it will affect prevalence much.

11_1_S) The publishing model needs to be changed. Peer-review should start from the assumption that research is false, unless proven otherwise (reject, unless proven otherwise). At the moment, it is assumed that research is legitimate, unless given reasons to reject a paper (accept, unless proven otherwise).

I believe mistakenly publishing an incorrect paper is asymmetrically worse than mistakenly rejecting a good paper. This used to be the case when publishers got most of their revenue from subscription, but the move to OA has changed the incentives to where it is financially costly to reject good papers.

12_1_S) Unfortunately, in any system where incentives are designed to drive behavior, some individuals will look for shortcuts to receive the incentives without the effort. Sanctions, better investigations, etc. will not stop misconduct, but might make it less a attractive option for some. Personally, I think this is a particularly difficult problem to fix since much of the funding for research is from the public and taxpayers don't directly see the costs of misconduct.

13_2_R) By ethics training I assume you mean research integrity training?

14_2_R) Changing criteria for hiring, promotion and funding is by far most important because many of the problems we are currently witnessing have to do with perverse incentives. The other solutions mentioned above are, however, important (non is unimportant in my view), too, and should supplement incentive changes (especially training initiatives that are comparably cheap to implement). I have ranked support for individuals or organizations who have expertise in detection of serious research misconduct last because I am unsure what exactly is meant here and how it could look like in practice.

15_2_R) Focus on correcting the scholarly record, rather than on assigning blame (which can also delay the publication of correction notices) or managing/punishing individuals. Article retractions should not be punitive, even though some individuals and institutions still treat them as such. (From <https://publicationethics.org/files/retraction-guidelines-cope.pdf>: "Retraction is a mechanism for correcting the literature and alerting readers to articles that contain such seriously flawed or erroneous content or data that their findings and conclusions cannot be relied upon. Unreliable content or data may result from honest error, naïve mistakes, or research misconduct. The main purpose of retraction is to correct the literature and ensure its integrity rather than to punish the authors.")

Other options: training for journal editors and supporting/partnering with existing organizations (such as COPE, ICMJE, CSE, WAME, etc.) on training

16_2_R) I have answered for my own country context only

17_2_R) I think the sector should consider the 'carrot' rather than the 'stick' as training is patchy across institutions. This should include information about how to avoid common pitfalls, because in my experience, it is very rare to come across someone who deliberately sets out to commit research misconduct.

18_2_R) I'm not sure where the funding is coming from in this question.
HEIs should be already paying for ethics training and RIOs and consider these core to their work.
Changing criteria for promotion etc would be great - again, that's with institutions to resolve. Or should there be a national standard?

Free text

The matter of promotion is linked to the effects of short-termism; the way to resolve this would be with lobbying funders towards more long-term awards, which is what the Director of my institution advised me when I asked about scope for addressing the problems of short-termism.

19_2_R) Re: option 1. The REF does not help and, in fact, promotes the current system with its perverse incentives. I'd support a move away from privileging studies published in specific journals (the "gold standard" which is nothing of the sort) and have never used this as a criterion when hiring. My view that good research is good research regardless of where it is published and there are enough cases of retracted/bad studies in these "high IF" journals to render the journals unimportant. I have used research output as an employment criterion. But what you would replace publications with (any) might lead to different problems and biases. I would also support a move to reward quality over quantity (of publications). I sometimes feel sorry for longitudinal researchers.

20_2_R) The task really needs to be professionalised by individuals with the experience to do this properly, and who are paid accordingly. At the moment this is often an additional and unwanted task dumped on administrators or leaders who have other primary concerns.

21_2_R) These are all very valuable options! It is hard to rank them really, because (a) they are not equally expensive -- for example, changing evaluation criteria is in essence cost-neutral; and (b) they are not all in the same way "solutions to serious misconduct". Searchable national inventories of closed cases are very useful for systemic learning, but have at most an indirect effect on the prevention of future misconduct. The option "support for individuals/organisations who have expertise in detection of serious research misconduct" is really interesting. Sleuths are extremely beneficial for the scientific ecosystem and it is absurd that they don't receive the recognition they deserve. Charity-based funding for sleuths would be greatly advised. The deterring effect of their multiplied actions could be huge, perhaps.

22_2_R) Whilst 'publish or perish' may be the dominant driver, I think it is unrealistic for this to change in the short to medium term.

23_3_O) I am not sure the ethics training achieves much. Those who need it will not pay attention or will intentionally disregard it. I don't think any of the recently uncovered frauds were acting out of ignorance.

24_3_O) I believe that we need to have universities better engage on the problem and create clear norms to their faculty. I also believe that we need to change the norms of co-authors - e.g., having a second co-author examine all aspects of data collection and analysis.

25_3_O) It's important not to be naive and have more quality control at all levels by all stakeholder (funders, research institutes and journals), but let's not overdo it and establish a culture of box ticking and mistrust.

26_3_O) Item 2 is fairly well implemented already, both at the doctoral training and early career researcher stages. Option 4 has just been adopted in my country.

27_3_O) Preference would always be to support the positives.

28_3_O) research ethics training should be part of anyone's education in research and not require specific funding. WRT serious research misconduct, it is likely that those conducting it understand best practice but choose to ignore it therefore educating them will not help it. Education around detection and raising concerns would be valuable

29_3_O) Sleuths are an invaluable resource, and mostly ignored by the relevant institutions. There is no real lack of courses on ethics, but without deterrent these remain devoid of any impact.

30_3_O) While training in research integrity and ethics is vital, combined with appropriate infrastructures and supports institutionally, in the longer term we will only effect change in researcher behaviours (and the pressures that may contribute to poor practices) if we change the system and environment within which they work. COARA, Science Europe, and many others around Europe are working to achieve this, although it will require a paradigm shift in the current academic structures and systems.

Role of publishers

Item 13

It is not the responsibility of publishers or journal editors to determine whether serious research misconduct has occurred, but they are responsible for ensuring the literature is decontaminated from erroneous work promptly. Please rate the following statements in accordance with your views on how this should work, from 1 = strongly disagree to 5 = strongly agree.

Agreement: Some options re publishers got 80% agreement across all groups Notably: -B: Publishers and Institutions work together

-D: Institution approach publisher when investigation finds severe res misconduct

-E: Publisher tells institution re author with repeated erroneous material

In addition, 80% of Group S agreed with A, re need for prompt retraction if serious errors that undermine confidence. Much less agreement for that from Group R.

Subitem	1_S	2_R	3_O	All
A) Articles that contain serious errors that undermine confidence in the findings should be retracted promptly, without waiting for an institutional investigation	83.8	48.5	64.0	66.3
B) Publishers and institutions should work together to facilitate sharing of key information when serious research misconduct is suspected	88.9	84.8	91.7	88.2
C) If conditions for retraction are not met, an expression of concern may be added to an article while an institution conducts an investigation	70.3	72.7	54.2	67.0
D) When an institutional investigation is completed, the institution should directly approach the publisher of articles affected by severe research misconduct and request retraction	91.9	90.9	92.0	91.6
E) When a publisher finds the same author repeatedly flagged for erroneous material, they should communicate this to research integrity officer at the author's institution	89.2	87.5	88.0	88.3
F) When a publisher or institution finds the same researcher repeatedly flagged for erroneous material, their name should be added to a database	51.4	51.5	62.5	54.3

Free text comments on item 13

Free text
1_1_S) "Articles that contain serious errors that undermine confidence in the findings should be retracted promptly, without waiting for an institutional investigation" - it is possible to add an expression of concern, and then retract the paper after the institutional investigation
2_1_S) All of the above
3_1_S) All of these are important. For the last statement: it needs to be 100% clear that all findings are on the same author. Sometimes it is hard to disambiguate.
4_1_S) An observation here that a conflict of interest can exist, where those involved in RI breaches from an institutional side may be editors on the publication where a work that breaches RI is in review/published. Though

Free text

not themselves a direct editor of their own publication, strong ties within editorial committees exist, which can usurp or complicate fair investigations that happen through RI breach reports to the publisher.

5_1_S) Database will not work in practice.

6_1_S) Databases are problematic. This should perhaps be discussed, but it is a bit of the "Scarlett Letter", and is there a way for people to reform and get off the database?

7_1_S) do not agree with the statement in the question that "it is not the responsibility of publishers or journal editors to determine whether serious research misconduct has occurred"

8_1_S) I disagree with the framing of the question. Who says that the journals have a responsibility to decontaminate the literature? While I am aware of COPE and of certain publishers and individuals within publishing organizations that are doing good work in this regard, I fail to see who appointed the publishers to have any responsibility at all except to their shareholders. I believe that the legacy model of scientific publishing is a structural barrier preventing progress on quality improvement and research integrity, and that the best we can do is stop pretending that journal publication is a marker of quality or integrity.

9_1_S) Publishers and institutions also need to work together to overhaul the current publication process and structure - without publisher support, the problematic 'publish or perish' model will continue. Expressions of concern seem open to abuse - unless there is a serious factual error in research work, investigations should be concluded before anything is made public. I would strongly disagree with a separate database for repeat offenders - the focus should be on retraction of the research itself, and having a 'shame database' may just encourage cover ups.

10_1_S) Publishers and journal editors ARE responsible for determining fraudulent research. They are domain experts and they license or own the copyright of the fake research. Unless they act appropriately in the face of evidence of fraud, they are complicit.

11_1_S) Regarding the last point, I don't see existence of a database per se would be a problem - it's not "public" so it likely would not cross the bar for defamation - unless of course the contents were leaked, so it needs to be VERY secure!

12_1_S) The above presumes that institutions and publishers can be trusted to conduct investigations. They cannot. Journals make money from publishing and would make much less money if readers realised how much in the journals are false or published because there are editorial conflicts in publishing certain research. That particularly applies to major medical journals publishing reports showing drugs or medical devices in a positive light: every such article can bring major journals (e.g. New England Journal, Lancet, JAMA) more than \$500,000 in reprint sales. I would have a regulator with trained forensic investigators doing the investigation.

13_1_S) When an institutional investigation is completed, the institution should directly approach the publisher of articles affected by severe research misconduct and request retraction- It should be the responsibility of the institution to ensure that articles ARE retracted, because it often doesn't happen nor promptly. Institutions need to update their databases too, e.g. PURE.

14_2_R) A database of sanctioned/banned authors should NOT be created. Beyond the practical obstacles of doing so, maintaining it, etc., "COPE's advice on sanctions ... is to be cautious because of the potential for legal challenges based on loss of earnings, reputational damage, discrimination, or suppressing access to the publishing market." (from <https://publicationethics.org/guidance/case/unauthorised-reviewer-challenges>)

RE "When an institutional investigation is completed...": Contacting the journal/publisher of select vs. all articles depends, based on whether the misconduct is specific vs. part of a larger pattern of behavior. See <https://publicationethics.org/guidance/guideline/cooperation-between-universities-and-journals-research-integrity>

15_2_R) Care to avoid enabling vexatious accusations and to ensure justice for researchers needs to be carefully balanced against the requirement for maintaining research integrity. Guilty until proved innocent is not a fair or reasonable approach.

16_2_R) I am a bit wary about the final point - what if the comments are being regularly raised by someone with an axe to grind?

Free text

17_2_R) I would prefer the terminology peer-reviewed scientific journal rather than publishers. Almost all publishers have a commercial interest which is an inherent competing interest concerning the intersection of study findings and publisher income based on journal 'sales'. I think it is clearer to say journals as managers of this type of peer review leading to published scientific content. And the issue is trustworthiness of the content. This is complex when a journal is owned by a publisher.

18_2_R) If the same author is repeatedly flagged for erroneous material that should absolutely be investigated, jointly by publisher and institution - but a process where repeated unverified reports led to inclusion on some kind of black-list is a very troubling idea.

19_2_R) retraction notes should be included in all papers that cite the retracted article and those authors informed that the work they cited has been retracted

20_2_R) Retractions without an investigation should only occur if there is no reasonable doubt that the findings are unreliable (i.e., if the investigation is not about assessing the reliability of findings, but about finding out who bears responsibility for the misconduct, why it happened etc.). In that case, the retraction note could state that an investigation is ongoing, and that the retraction note might be updated to include further information once the investigation has been concluded. If there is doubt about the (un-)reliability of findings, no retraction should be undertaken before an investigation has come to a clear conclusion. In that instance, an expression of concern should be the option to go for.

21_2_R) The problem is that there are so many publishers, and so many papers, that individual publishers are almost powerless. A national/international database run by an independent organisation would make far more sense.

22_2_R) These are good suggestions, the one more pressing than the other. The slowness of publishers' decisions about retractions (awaiting investigations and legal counsel) is at unease with the direct need for readers / consumers to know that there is (or might be) something wrong with a paper, that is for sure. Some of these suggestions aim to speed up the process, but a thorough investigation will need time anyhow. A very parallel suggestion might be to have publishers adopt "under investigation" or "(retraction) decision pending", as a fourth (non-final) status apart from published / retracted / concern expressed. It should be clear that being transparent that an investigation is ongoing, should not induce "trial by media". The journalistic code (also by retraction watch) should be so that no news item is published about articles in such a status.

23_3_O) A serious publisher should not accept sending manuscripts for review if these are coming from labs either a clear pattern of misconduct or negligence. The fact that they keep the doors open for serial offenders (while automatically rejecting less famous investigators) is outrageous.

24_3_O) For flagging - how and by whom? Need to be able to differentiate between legitimate concerns and vexatious/malicious complaints.

Publisher and institution models may have an impact on what is feasible.

Not all researchers are affiliated with an institution.

25_3_O) For the first item, 'Articles that contain serious errors that undermine confidence in the findings', the impact depends on the relevance of the research and its significance to society. Some articles, despite containing numerous mistakes, are not intended to be widely read or influential within their field. However, other research findings, such as the use of hydroxychloroquine to treat COVID-19, can have a substantial societal impact. This article took over four years to retract such studies, which caused significant harm and societal burden.

26_3_O) I suspect the database idea is legally problematic.

27_3_O) I think that there needs to be more collaboration between institutions and journals such that flawed articles are promptly retracted. This will require a willingness by both parties, which does not currently exist in many instances, with journals being slow or unwilling to retract and institutions trying to protect their reputations and rankings.

I cannot see how a database of repeat offenders would work. It would need to be international and frequently

Free text

verified and updated. Retraction Watch already has a very comprehensive database that institutions could use more effectively.

28_3_O) Throughout the above text "should" is an ideal situation that is probably not achievable without legislative change. All of these impact on GDPR in some way or another.

Whistleblowers and bystanders

Item 14

Please rate your agreement with the following statements about whistleblowers from 1 = strongly disagree to 5 = strongly agree

Agreement: Responses veered in the general direction of agreement for all these subitems. 80% agreement achieved by Sleuths regarding disincentives to report serious research misconduct. The Other group has 80% agreement on collateral damage concerns and whistleblower identity protection.

Subitem	1_S	2_R	3_O	All
A) There are disincentives for researchers to report serious research misconduct	89.2	63.6	60.0	72.6
B) Usually there is insufficient protection for whistleblowers who report serious research misconduct	75.7	60.6	48.0	63.2
C) It is important to be aware of and mitigate collateral damage that may be caused to other members of a research group if one member is found to have committed serious research misconduct	70.3	72.7	88.0	75.8
D) Whistleblowers should have their identities protected, with confidential channels for reporting suspected serious research misconduct	78.4	81.8	80.0	80.0

Free text comments on item 14

Free text

1_1_S) All no brainers IMHO.

2_1_S) All of the above, and the threat of litigation by respondents needs to be addressed too. Employing institutions should look after staff who are whistleblowers including providing legal support as researchers are doing this as part of their job, if this is within their area of expertise.

3_1_S) Anonymity is sacrosanct!

4_1_S) I agree that it is important to mitigate collateral damages etc. However, in no circumstances this should happen at the expense of correcting science. The way to protect actors is transparency and collective reflections. There are very good examples to follow. Here is just one of them:
<https://laskowskilab.faculty.ucdavis.edu/2020/01/29/retractions/>

5_1_S) I have blown the whistle on misconduct and do not like the idea of anonymous allegations. In addition, it is always possible to work out who blew the whistle. The only collateral damage to others in the research group should arise if they knew of the misconduct and failed to report it or colluded in some way.

Free text

6_1_S) I put 2 for the last item because while it's clearly desirable, I think it's impossible.

7_1_S) Item 1 depends a lot on the relationship between whistleblowers and suspected perpetrators.

8_1_S) Not sure if there are insufficient ways to protect scientific whistleblowers, I think the problem has more to do with that some scientific communities are small and tight-knit, which makes it difficult to talk about the problems of what seemed to be a friend. It might also make it difficult to stay anonymous.

9_1_S) Our integrity policy suggests that researchers have a responsibility to report misconduct. There has been some disagreement on whether reporting is mandatory, which has put pressure on researchers. While reporters may be protected by whistleblowing laws, this does not fully cover social and reputational damage. Previous work has found that many people are not comfortable reporting misconduct without fear of personal consequences (Research integrity :a landscape study, UKRI, 2020)

The the protracted misconduct case I was witness to, the reporter of misconduct was repeatedly (incorrectly) told their technical knowledge was incorrect, accused of harassment and bullying (while being subject to bullying behaviour themselves), and given no management support is raising or addressing their allegations. When initial concerns were ignored, this lead to a significant amount of time spent by the reporter gathering and organizing evidence for the allegations. During this time, senior management repeatedly attempted to downplay the issue, and raised concerns about the reporter's work activities and performance. When the allegations were dismissed, it was without ever taking it to the research integrity officer - the reporter was told it was their responsibility to make a formal complaint before this could happen.

The outcome of this was a severe impact on the reporter's mental health, and negative repercussions both socially and progression-wise at work. Protections in place for raising concerns were insufficient, despite the integrity policy supposedly stating this was the reporter's responsibility. This greatly disincentivizes people from reporting misconduct.

10_1_S) Regarding the last point above, I believe that this does not have to be necessary, but it should be an option at least.

11_1_S) Researcher's careers depend on those above them, and seeing how unlikely it is that a university will find anything negative about their senior researchers, the reporting researcher is often sacrificed. Reporting of research misconduct is as such extremely low - I would say lower than in business.

Re. collateral damage - yes and no. In some (actually, many) cases the serious RI breach is known to all members of the research group/publication. It depends on the case and type of RI breach. Even so, where people could not have been aware of it, they should be protected. A bit of balance in power and responsibility also needs to be built into responses, accounting for often a lack of say from junior researchers.

12_1_S) Transparency International has good guidelines / principles on whistleblowing in other sectors

13_2_R) Anonymous whistleblowers should be rare, and too many people seem to take advantage of it. Also, while there may be reasons to protect an individual's identity from a person they are accusing of misconduct, their identity should be known amount the other relevant parties (such as journal editors).

14_2_R) Answered for my own country context only, other countries will have different arrangements, it's not possible to answer the first two questions in relation to all of the the globe, the last two might be more global. I am concerned here about the validity of the findings from this question.

15_2_R) I think the topic of whistleblowers is an interesting one. At my University, someone can raise a concern via our Whistleblowers Policy, but the matter would be deferred for investigation under the University's Research Misconduct Procedure and would be required to identify themselves to the lead investigator. Although all reasonable steps are taken to ensure confidentiality, full anonymity cannot always be guaranteed.

16_2_R) Please don't use conjunctions/juxtapositions ("A and B") in statements. If you agree with A and disagree with B, you are lost.

For whistleblower protection in research, please see ENRIO's Handbook on Whistleblower Protection in Research.

17_2_R) Re: insufficient protection. This is an unknown,. What is known is that a litigious fraudster might try to cripple a whistleblower financially. This is poor. I can understand the slighted reputation and the feeling of offence

Free text

but the first response is to rebut, challenge and defend not go crying to a lawyer and try to close down criticism and discussion. Re: confidentiality. This is consistent with HR misconduct practices but there are pros and cons to this - prevents the establishment of vexatiousness/ulterior motives etc. Once a misconduct investigation starts, it's on your record regardless of outcome.

18_2_R) This is a difficult subject given how closely researchers work together, and how powerful PIs are compared to postdocs/students. Again it comes down to the career structure and perverse incentives.

19_2_R) Whilst whistle blower must be protected, anonymity risk enabling vexatious accusations.

20_2_R) with regards to whistle-blowers sometimes it is very easy to identify them; whistle-blowers have protections within their employing organisations but there is very little protection if they are reporting misconduct on another organisation.

21_3_O) At present, whistleblowers are often the ones whose careers suffer because of their reporting of misconduct. They may be 'black-balled' by their research community, forced from their jobs, or fail to progress in their career. The ENRIO Handbook on Whistleblower Protection provides a checklist on ways to protect whistleblowers, which include confidentiality, the possibility of anonymity etc (in line with the above recommendations) and expands on each recommendation with examples and descriptions of best practices. <https://zenodo.org/records/8192478>

The ENRIO report also describes a Best Practice Whistleblower Management System (WMS) developed by the International Organization for Standardization (ISO) in 2021, the world's first best practice guidance for establishing a WMS. While not commonly used to date, this could provide a consistent approach to whistleblower protection across organisations.

22_3_O) Distinguish between colloquial use of the term whistleblower and its legal definition - consider public interest disclosure.

23_3_O) I actually think all of the above are 5. However, the reality is that anonymity cannot be maintained in legislative systems that require disclosure of the allegations to the impacted parties. Hence, "4".

24_3_O) I believe that we have ignored the harm to innocent members of a research group affected by misconduct.

25_3_O) If individuals do not have adequate protections, they will not report these events.

26_3_O) The first two points are complex issues and it likely depends on the context. It could be quite challenging in a smaller academic unit to protect the identity of the whistleblower which in itself is also an additional disincentive for reporting misconduct.

27_3_O) The reference I alluded to earlier is relevant here as well [redacted]

28_3_O) Whilst there is a potential for a significant negative impact on researchers I do not think these are really 'disincentives' as all researchers must uphold integrity as a primary aim therefore have a duty to report concerns

When serious research misconduct is confirmed

Item 15

Which of these practices should be options for institutions when serious research misconduct is confirmed. Please give your rating from 1 = strongly disagree to 5 = strongly agree.

Agreement: Group S is keener on what may be seen as the more negative consequences for severe research misconduct; 80% endorsement for C and D (collapsed to 3 point

scale). They are less keen on options A and B - but there's less agreement from all groups on those options.

Subitem	1_S	2_R	3_O	All
A) Educational retraining for researchers who have been found to commit serious research misconduct	29.7	60.6	48.0	45.3
B) Restorative justice approaches; e.g. requirement to meet those affected by the misconduct to discuss its impact	37.8	48.5	52.0	45.3
C) Sanctions such as demotion or dismissal	94.6	72.7	68.0	80.0
D) Report on the investigation made public, with identities of those found to have committed serious research misconduct disclosed	86.5	72.7	76.0	78.9

Free text comments on item 15

Free text

1_1_S) All investigative reports must be published online accessible to everyone, as per Swedish model. Not just where misconduct was established, but also where the accused was acquitted.

2_1_S) Deliberate serious research misconduct should be a firing offense. No ifs and buts.

3_1_S) I don't think the first two will be particularly effective, and would recommend the last two.

4_1_S) I feel very uncomfortable and unqualified to answer this question.

5_1_S) I think that all reports on research misconduct should be made public, but the sanction should depend on the degree of guilt and harm done. In medical research, how can you have restorative justice when a researcher such as Don Polderman is required to meet the relatives of thousands of relatives of patients killed by his research fraud and we do not know which of the deaths were the "excess deaths" due to the fraud and which were the deaths that would have occurred anyway? I chaired a research misconduct inquiry in a developing country. The head of department compelled 4 juniors to falsify data and all 4 said that they had been threatened with being killed and 2 professors at a major US university, who were co-authors, colluded in cover up.

6_1_S) I think that direct consequences for those performing research misconduct is most appropriate. Especially when they have to (literally) face the consequences of their actions. I think it's important to share results of investigations publicly, but it is imperative this does not lead to a 'witch hunt' or automatic 'guilt-by-association'. It is nuanced and I think the general public is not ready to handle that.

7_1_S) In most cases, restorative justice is not an option because the victims are not easily identified. I would also be worried of confusion between the status of "whistleblower" and the status of "victim". One thing that often happens in my experience is that it is tempting for institutions to misconstrue cases of misconduct as conflict between people. I would be worried of making this easier...

8_1_S) In my experience, the 'restorative justice' approach was harmful. Those accused of misconduct completely failed to accept any of the evidence, and the reporter was left feeling 'set up' by management as the issue was framed as interpersonal rather than a genuine misconduct concern. Demotion is complex, but we are now left with a case where a senior staff member has demonstrated serious fully evidenced dishonesty, but is trusted to approve work carried out by junior staff. I am not sure retraining would be appropriate or effective, as they have denied the incident occurred at all. I would question if disclosing identities publicly would be beneficial in the long run, as this could amount to a 'name and shame' exercise. Partial publicity of reports, if only to demonstrate precedents in certain cases, could be helpful.

9_1_S) Name and shame!

Free text

10_1_S) Retraining and restorative justice, while well-meaning and entirely reasonable, are a waste of time if behaviour change is required. Most fraudsters would happily do both of these if they can still sort their way to the top without a financial or status penalty. It would just be the cost of doing business.

11_1_S) Some kind of restorative approach may be appropriate, but I don't think it would be in the form of meeting with those affected. I'm not sure what it would be instead but possibly some way for the researcher to show that they have changed their ways.

12_1_S) To me, the "serious" in serious research misconduct implies some form of intent. It is different from unintentional error or even negligence. Therefore, it should be treated as fraud in the workplace.

13_2_R) All should be options. Whenever SERIOUS misconduct (with intention to mislead) is upheld, no follow-up measure should be excluded a priori. However, it might be advisable to reflect on the desirability of each of these in various situations. Not all of them might be well-suited for all misconducts. Restorative justice may be difficult for example when no people, but only "the reliability of the literature" is harmed.

14_2_R) Educational retraining should absolutely be the focus, especially for ECRs.

RE Sanctions, it is the institution's responsibility to ensure their employees are doing their job(s) ethically, etc.

15_2_R) In principle the idea of Restorative justice approaches are fantastic, but I think would be a huge administrative task to facilitate effectively.

16_2_R) Sanctions are important, but the contribution of the system itself does need to be acknowledged. If, for instance, a University places a member of staff under severe pressure, they shouldn't be blameless for the subsequent consequences.

17_2_R) The problem I would have with the last item- and it's the same problem I have with the disclosure of any investigation where a researcher is named- is whether the processes have been robust and fair and are *consistent* across all investigations (see my earlier point about needing a consistent process for this that all HE institutions follow). If the researcher admits the misconduct- fine, go ahead. But if the researcher challenges and disagrees -with good reason, then the publication of personal details would affect them negatively.

18_2_R) with the view to be restorative and not excluding those who have found themselves in the wrong side of research practices. We need to look after them as human beings and their mental health.

19_3_O) Again, I doubt this is usually a matter of (lacking) education about ethics. If the misconduct is serious and established beyond doubt, then dismissal is the only feasible option.

20_3_O) Demotion and dismissal should be on the table, otherwise any measures are toothless.

21_3_O) I think transparency to the public is vital to ensure confidence in academia. I am concerned that educational retraining is not necessarily the answer if misconduct has been conducted in an intentional manner but could be useful for examples where it has been conducted in error

22_3_O) It depends on the severity of the misconduct and whether it qualifies as a crime. Not every crime is disclosed to the public, and even criminals have a path toward reform or redemption. It is crucial to analyze each case individually and to understand the context that enabled the misconduct to occur.

23_3_O) Personally, I believe that option 4 (the nuclear option) is correct. However, it could not be implemented in any regime that I am aware of (outside the People's Republic of China).

24_3_O) Rand's work will be looking at international models.

25_3_O) The options available will be context-dependent and should consider the harm caused by the misconduct, e.g., flawed clinical trial versus flawed archaeological data, the level of intent to deceive, etc. Having strong sanctions in place and being transparent about the outcomes of serious misconduct cases sends a strong message to the research community that the institution takes such breaches very seriously and may act as a deterrent. However, where the misconduct is not egregious, the possibility of rehabilitation should be considered, combined, where appropriate, with restorative justice.

Free text

26_3_O) The restorative justice approach could be difficult to implement in many cases. In other cases, those impacted would likely be the same research team the researcher is working with. Also, there should be some additional measures in place to avoid these meetings turning into public humiliation/shaming procedures.

Unintended consequences/barriers to progress

Item 16

Please rate your agreement with the following statements about unintended consequences/barriers to progress from 1 = strongly disagree to 5 = strongly agree

Agreement. The percentages rating agree/strongly agree to subitem A are markedly higher for Group S than for other groups.

Subitem	1_S	2_R	3_O	All
A) Fear of reputational harm makes institutions less likely to take action on serious research misconduct	97.3	57.6	72.0	76.8
B) Investigations of serious research misconduct divert researchers and associated resources from more productive research work	21.6	30.3	28.0	26.3
C) There is a danger that structures developed to investigate serious research misconduct could be weaponised by those with political agendas - e.g. on topics such as vaccination, climate change, sexual health.	51.4	45.5	52.0	49.5
D) Failure to address serious research misconduct at the institutional/employer level could lead to more bureaucracy from external agencies	43.2	69.7	64.0	57.9

Free text comments on item 16

Free text

1_1_S) "Investigations of serious research misconduct divert researchers and associated resources from more productive research work" - it is impossible to base a scientific work on previous fraudulent research. For example, fake papers delay and bias systematic reviews, meta-analysis, etc.

2_1_S) Almost all researchers would benefit from being diverted from their day to day tasks. Most would be better off with a colouring book. I'm not remotely concerned that it would be detrimental to have researchers spend time investigating each other. This would actually be a highly productive activity that they should do even in the absence of any evidence of fraud.

3_1_S) As noted in another comment, I think that the main barrier to progress is that the main objective of those investigations is usually to find out whether a staff member has done something wrong whereas the main (or at least the most urgent) objective should be to correct science transparently and openly.

4_1_S) I do think that investigations of serious research misconduct divert researchers and associated resources away from potentially more fruitful work (in the sense that undoing misconduct is not building towards scientific theory etc), but I think the act of sleuthing is "productive" is a different way (i.e., it saves resources in the long-run when there is a literature plagued with misconduct).

Free text

5_1_S) I don't think the last two matter enough to be good excuses to stop this issue being properly sorted, we need to be brave and just get on with it. I feel if we don't sort it, then the issue of trust will become even worse as our reluctance to sort it becomes an issue of trust in itself. Ironic!

6_1_S) Institutions are already failing to address serious research misconduct, so it's difficult to see how this could lead to more bureaucracy.

7_1_S) Investigating serious research misconduct = productive research work :)

8_1_S) Reputational impact appears to be the primary concern of institutions, in both my personal experience and reports I have read (Barriers to Investigating and Reporting Research Misconduct, UKRIO, 2024). Multiple questions during the investigation I was witness to revolved around how the allegations could be kept private and the matter resolved internally. This was to the degree that my department did not want to involve the central Research Ethics officer of our institution.

At least 50% time on top of our normal workload was spent on the allegations, evidence gathering, and investigation. This was uncompensated, and limited the amount of productive research work we would normally be able to do.

9_1_S) The whole point of developing structures to investigate serious research misconduct is to ensure that weaponisation by those with political agendas is much more difficult, as it ensures researchers involved in such topics don't make it 'weaponisable' by breaching research integrity, and institutions ensure that if they do they are held accountable - creating more transparency, trust and rigour around these topics.

10_2_R) - It is not entirely clear whether the required "agree/disagree" should correspond with the desired state, or the actual reality. It would be good to disambiguate this in a future round.

- Fear of reputational damage hinders institutions to be transparent about their cases (we see in our country). I'm not sure this hinders them to take appropriate action. It is not excluded that investigation commissions qualify serious misconduct too lightly (as it's about their own peers in their own institution).

- This growing weaponisation is a documented tendency. (It's much more for personal conflicts than for political agendas, but also for political agendas indeed.) I can testify myself, as I have seen such "weaponisation" complaints for political reasons where there were none before. The Evaluation Report of the Dutch Code of Conduct for Research Integrity (2024) notices this, and hence advises to assess admissibility of complaints more strictly. The foreword of the 2021 Annual Report of the LOWI, Dutch organ for Research Integrity, makes an inventory of motives it sees for cases brought forward to it, which are much more diverse than only safeguarding the integrity of the research record. <https://lowi.nl/wp-content/uploads/2022/09/Jaarverslag-adviescommissie-LOWI-2021.pdf>

- It is indeed well-known (and I heard this confirmed multiple times) that democratic governments are ready to themselves police the issues that are deficiently handled by the sector itself. This seems like a political law (from sugar industry over journalism, AI safety and social media algorithms to research integrity). Whenever a research fraud case happens in a country, political questions and discussions pop up in Parliaments (does our country have the right instruments in place? Have they failed? Should they be replaced by governmental control?). If the research sector wants to self-steer and self-govern, it should self-police its research integrity behaviours. If it fails, it will be delivered to the will of national politics.

11_2_R) Again, answered for my own country context only

12_2_R) As a publisher, we know less about this topic.

13_2_R) diversion of investigators' time and effort is a necessary consequence of the process, but not a barrier

14_2_R) I don't like the wording of the second item as it implies that detecting and dealing with research misconduct isn't productive. In actual fact correcting the scientific record could be seen as more productive than producing new data, on the premise that no data is better than bad data! Regarding weaponising research misconduct, I've experienced this a couple of times (relating to vaccines, and to research into single-sex spaces), but in both cases it was relatively straight forward to protect the researchers due to proof that they had followed ethics/governance processes. Infact my view is that if we have more robust processes in place, they will be able to identify and dismiss malicious claims fairly rapidly.

15_2_R) My view is that an institution with a member accused of serious scientific misconduct might want to investigate that swiftly and deal with it. I might be naive. But it seems a weakness and an insecurity to think

Free text

otherwise. Re: diversion, HR depts are adequately equipped to deal with such investigations. I have been involved as an investigator so the resources are already there. I don't imagine the HR depts are different elsewhere.

16_2_R) The last point is an interesting one, as 'failure to address serious research misconduct' is a form of research misconduct in itself, but currently requires the institution to reflect on any procedural irregularities. At my university, we have addressed these types of claims via an Appeal Panel with at least one external member to ensure objectivity. However, in these situations it would be useful to have a fully independent body to assess the claim, otherwise the outcome may not be accepted by the Complainant.

17_3_O) Agree with every single one of these comments strongly.

18_3_O) Being unfamiliar with the evidence about these areas, it was not possible to make an informed choice.

19_3_O) On the first point, not investigating serious cases could also harm reputation and this fear could motivate them to take action. I know a few such cases where the case was also made public by the whistleblowers. In one case, the institution took very strong steps against the perpetrator. I guess institutional reputation can work both ways, if there is a risk of the case becoming public, it could motivate the institution to initiate an investigative procedure.

20_3_O) One major element is fear of losing money. Many of the highly productive fraudsters are well funded individuals who boost rankings and bring a lot of overhead to their respective institutions.

21_3_O) The argument that misconduct investigations divert resources from productive research work misses the point that flawed research diverts resources directly and indirectly from productive research work.

22_3_O) The potential for weaponisation by political agendas is very timely and a point well made, that warrants serious consideration.

Item 17

“One of the likely drivers of trust and distrust in research is the way research institutes, publishers, and funders respond to allegations of research misconduct” (Bouter, 2024)

Table shows percentages selecting each option in each group.
(For personalised reports, * denotes your response).

Options	1_S	2_R	3_O
A) Agree	67.6	69.7	64.0
B) Neutral	18.9	15.2	20.0
C) Disagree	13.5	15.2	16.0

Agreement: This item did not divide the groups, but it also did not achieve 80% agreement.

Free text comments on item 17

Free text

1_1_S) [redacted]

Free text

2_1_S) I am not sure whether this is with regards to the general public or academics. For academics, I think yes. I think it could be a factor for the general public too, but I am not sure to what extent the general public is aware of research misconduct.

3_1_S) If everybody would be open on what was happening, people could make an informed decision and make up their own mind on what was going on at the moment.

4_1_S) It is also how research is communicated and how scholarly communication is navigated in the current world political environment.

5_1_S) Not sure it's proven to be a "driver" of mistrust, but it may contribute in part. I think in the public eye the criticism probably does apply to research institutes (failure to address misconduct), and the funding agencies (inadequate sanctions for researchers such as funding bans). However, I'm not so sure the public really grasps the role of publishers in the research misconduct pipeline, or holds them "responsible" in the same way as institutions of funders. Most of the public just don't understand how scientific publishing works in the first place!

6_1_S) Of course. most research institutes, publishers and funders could not care less about investigating research misconduct.

7_1_S) Only when there are serious repercussions for NOT responding appropriately to allegations of research misconduct will institutions take it seriously. Currently, there is little benefit to researchers for holding high integrity standards themselves or reporting misconduct in others. Institutions must be held accountable for this, and there are few incentives for them to investigate allegations in an unbiased manner without external pressure.

8_1_S) Scientists are very worried that the public has lost trust in science. This is a fact reflected in polls of scientists. But scientists may not deserve all the trust they have and may be correct in worrying about future loss of that trust, the truth is that trust in science remains very high. Here is a quote from a recent interview of French sociologist Michel Dubois about the results of a vast poll of French scientists "Une autre évolution importante concerne le sentiment d'une rupture croissante entre science et société. Les chercheurs et chercheuses sont presque deux fois plus nombreux qu'en 2007 à considérer qu'il existe une « crise grave » de ce lien. Le paradoxe, c'est qu'une autre enquête montre que huit à neuf Français sur dix leur font davantage confiance qu'à tout autre groupe professionnel."
<https://lejournal.cnrs.fr/articles/a-trop-longtemps-considere-que-lintegrite-scientifique-allait-de-soi>

9_1_S) Social trust in research was very high in the 1950s but there were probably no strong mechanisms then.

10_1_S) The public seems to trust us researchers despite widespread and well-known problems with transparency and reproducibility as well as research integrity. I wish Bouter were right but my hunch is that the public is too far removed and will not notice.

11_1_S) This statement could be true, however what's not specified in the quote is trust in research by whom (which/ all groups), ie the public, funders, researchers, etc. Different sectors of society are likely to have different levels of awareness around how institutes, publishers and/or funders handle allegations of research misconduct.

12_1_S) You can add authors to this list. Authors that admit error increase trust

13_2_R) Agree but could be biased towards agreeing with Lex Bouter.
Trust of who? Researchers or general public? I'm not sure the public are very aware of how misconduct is handled at institutional level apart from general cynicism across all spheres of life because people rarely face real accountability.

14_2_R) As previously stated, universities, publishers and funders are limited as to what information they can share with the wider public due to confidentiality.

15_2_R) From following the discovery and reporting of misconduct over the past 10 years, the common theme that emerges is the failing role of publishers and editors. And the commonest problem appears to be delay, followed by failure to address the concerns.

16_2_R) I would say the problem is researchers in general, not only institutions, publishers and funders (although they do play a part, hence my neutral rating).

Free text

17_2_R) It is not clear in this statement who is doing the trusting, and drivers of trust will vary by population. It might be that some segments of society's levels of trust will be impacted by the way in which allegations of research misconduct are responded to, but it might be that other segments of society's level of trust is in no way impacted by this matter. Trust is a feeling/disposition that people hold so we need to know which people are being referred to here.

18_2_R) Publicly visible reactions by institutions, employers and funders (and the media coverage of them by journalist) may indeed influence trust and distrust, but I think overall, this impact is overrated. Let it be one of many drivers, yes.

19_2_R) Self-correction is essential for proper science. If science ceases to be self-correcting it is no longer a valid enterprise.

20_2_R) The public doesn't generally understand scholarly publishing, so this isn't driving public mis-trust. There are MUCH bigger drivers (eg Trump and what Stephen Colbert termed "truthiness" - <https://en.wikipedia.org/wiki/Truthiness>).

21_3_O) Distrust in research is based on the superior marketing and promotion of non-research actors. If researchers spent 25% of the time as a social media influencer in learning how to effectively peddle their message to the public, trust and distrust in research would matter so much more. We are competing with a system of influence for which the entire conversation about ethics and policy and principles and training is a joke.

22_3_O) Evidence sources on trust in research provided earlier in the survey.

23_3_O) Most of the variance in trust/distrust is explained by political and ideological variables.

24_3_O) To some extent I agree with this in case of public's trust in research, but to a larger extent I think that people (members of the public) already hold their own beliefs about science and researchers and these beliefs won't change that easily.

Trust in science is most likely also impacted by other external factors not directly related to actors within the research field, like personal world view and values, political views or ideology which can also impact trust in other public and democratic institutions. Sometimes the driver of distrust could be an intentional disinformation campaign to discredit well-established institutions for political reasons (i.e. vaccination, climate change). Also, trust could be built in other ways like science-communication or by how researchers participate in the public life.

I tried to look some eurobarometer studies and also other studies on trust in science, but it seems that the countries with higher trust ratings (several Eastern European countries) don't seem to be the countries with most developed procedures for handling misconduct. All in all, it is difficult to measure the level of trust, but there doesn't seem to be a clear correlation with misconduct governance and trust in science. (I could be wrong though).

See here: <https://www.cienciaviva.pt/en/eurobarometer>

Also see:

https://www.researchgate.net/publication/377977956_Trust_in_scientists_and_their_role_in_society_across_67_countries

25_3_O) Unclear what the reference concerns, although I happen to recognize it :-)

Final thoughts

Free text comments: final thoughts

Free text

1_1_S) Both, sleuths and research integrity officers could be silenced by the leadership if a "golden boy" or "a member of the old boys network" is investigated. According to my experiences there is a big difference in handling the misconduct cases or outcome of the investigation taking into account the power relations of the researchers involved. The ones at the top seem strongly protected and the systems are not well resistant to the missuse of their power on the outcome of the investigations, I have witnessed a few cases that as retaliation for the whistleblower's false accusations have been filled in.

2_1_S) Could you share any information links related to the questions etc. asked? E.g. Bouter 2024, but also others. It would be great to have a 'reading list'.
Generally, just a big thank you for doing this. Seems pretty comprehensive!

3_1_S) Good luck!

4_1_S) I am a part of College Invisible (to specify my previous answer)

5_1_S) I am also an editor of a journal and have to deal with these issues in that role, which partly overlaps with group 2.

6_1_S) I chose "Sleuths etc" and I put a lot of things in the "etc" :)
Looking forward to the meeting!

7_1_S) I spent some time filling out text fields in the survey initially, as it stated at the beginning I would be able to take a break after each page. However, I found at one point it timed out after I had completed 13 pages, and all of my text responses were lost. I re-filled it in but references may not be as extensive as my original answers.

8_1_S) I would like to contextualise these questions about research integrity in a broader discussion about transparency, incentives, and how to build structures/workflow that allow errors to be caught, as well as how to build systems that allow data provenance, processing, and analysis to be tracked and certified.

9_1_S) The international and collaborative nature of research and publishing are major obstacles to investigating research misconduct and punishing the guilty. In 2024, I had 5 publications containing data in three different journals. One journal has an editor in New Zealand but is published in Australia. Two journals are edited and published in the UK, but the publisher of one of those is German. On each publication, I had between one and five co-authors, resulting in me having 18 different co-authors from 13 institutions. Eight institutions are in UK, two in New Zealand and three in three different Australian states. Who would investigate possible misconduct in my publications and if individuals in different countries were involved, how would we make sure that sanctions are comparable?

10_1_S) The issue with mala fide research integrity actors, people who abuse their offices to spread false narratives, undermine the debate and whole investigations and who silence dissenting voices.

11_1_S) The whole framing of research conduct as only being "serious" if it was (verifiably) deliberate is problematic. It sets the bar for evidence very high.
Efforts to combat fraud will only be successful if relevant actors are *incentivised* to find and follow up on problems. Right now, everyone is incentivised not to find problems, so it's all blah-blah.

12_1_S) What are the impediments to publishers rapidly flagging an article with an expression of concern, if data are known to be unreliable? Financial, reputational, legal, relevant expertise missing, and others? How can these impediments be addressed?

13_2_R) Are 'sleuths' aware of the potential impact of making allegations which are not backed up by evidence on the academic careers and mental health of researchers? I am particularly thinking about some of the comments made on PubPeer which are made anonymously.

Free text

14_2_R) how can we proactively identify research misconduct?

15_2_R) I suggest using simpler words. For people who speak a second language, it can be hard to understand the questions. At least this was my experience. From what I've seen, it's better to use easy words so everyone understands, as language levels can be different.

Also, the scales in the questions were not consistent. In one question, 1 meant the lowest, but in another, 1 meant the highest.

The survey was not anonymous. So this should be clearly stated as one separate sentence.

16_2_R) I'm both a research integrity/ethics office AND a researcher so have a foot in both camps.

One topic of interest not addressed in this survey is use of terminology. More should/could be done to avoid confusions around terms like research culture, integrity, ethics, misconduct, governance, open research etc. etc.

17_2_R) In the first few ranking questions, my experience in filling surveys directed me to answer reversely: "1" as the top ranked (most important), "2" the second most important etc. This is contrary to the instruction in the question. I have read carefully and changed all my answers as they should be, but there might be other respondents who didn't notice this and filled reversely. Suggestion to ask expert statistical advice to detect possible reverse answers, or double-check consistency between comments and ranking.

18_2_R) Is there a need to recruit research investigators/assessors/auditors?

19_2_R) It wasn't clear to me what I was being asked to refer to, e.g. a country, the globe, an institution or a field. If I was asked to reflect on a different country my replies might have been rather different, although serious research misconduct is a global concern we know from what evidence we do have that incidence varies by nation (e.g. see data on paper mill activity by country) and that research environments vary considerably (e.g. publish or perish culture and incentives vary considerably between countries and even between fields. I am not sure therefore that it's possible to generalise to all contexts. I have answered only in relation to my knowledge of my own country context. I think there may be a need in next steps of the work to be clearer about international differences.

20_2_R) It's come up at various points, but the role of the law seems to be bubbling somewhere in the background: the suspicion that journals won't act for fear of being sued. If Datacolada with their dispassionate and thorough investigation of recent fraud can be hounded, I wonder if there is also a need for Universities to protect sleuths legally and financially. This is no help to unaffiliated sleuths, of course.

21_2_R) See previous comments

22_2_R) We were surprised there was nothing about how to detect of misconduct, as well as that there weren't questions related to author behavioral misconduct (<https://publicationethics.org/topic-discussions/author-behavioural-misconduct>).

23_3_O) I have belonged to both groups for a short while, but currently am neither.

24_3_O) It would be helpful if we know the punishments for those who did egregious research misconduct.

25_3_O) Policy development in relation to research integrity

26_3_O) Seems pretty thorough and comprehensive to me.

27_3_O) Thanks for the initiative. You asked good questions, although some were difficult to answer because situation in practice vary a lot. Lack of good empirical evidence also makes issues a matter of personal opinion that should be not.

28_3_O) Would encourage more positive framing - what more could we be doing, facilitating, etc. but looking at a variety of ways to do so, looking beyond new regulatory or legal structures.

Lack of evidence for certain questions made them difficult to answer and some questions did not feel appropriate to answer if you don't, for example, work in an institution.

Free text

Any changes to the system will have consequences – intended and unintended – which will have long-term effects on the whole system. Evidence would enable a discussion about these long-term consequences ahead of determining next steps.
