

Publication Ethics: Promoting Integrity in Research Reporting^{*}

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Thank you to UST for inviting me to this wonderful 400th anniversary which is really something pretty special. And like the best anniversaries, it has been a feast both for the mind and the body and an opportunity to make good friends. I would also like to take the opportunity to add the Philippines to my list of countries where I have spoken. So, thank you very much.

Today, I am going to talk about publication ethics, and I would like to start with a definition or at least a question: “What do we mean by publication ethics?” Well, a simple definition is to say that many ethical issues are first noticed, when publication happens, either by editors, reviewers or readers; either during the publication process or after publication. There are also certain forms of research misconduct which actually only occur once the work is published. So, when we talk of fabricated data which is just on the mind of the researcher, it becomes a problem when it is on the page of the journal and somebody might be misled by it. Similarly wrong attribution becomes a problem when it is in the journal. And plagiarism, I think, one can only commit this once the material has been published. So, this is the reason why we focus particularly on publication ethics.

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It would also be false to say that you can draw a clear distinction between research ethics and publication ethics. These two are intricately linked in a continuum in the design, conduct, analysis and reporting of research. Some of the issues involve unethical research design, lack of patient consent, inappropriate analysis, data fabrication, data falsification, image manipulation, plagiarism, authorship abuse and redundant publication. Journal editors are concerned with many of these issues. It is important though to remember that journal editors only have some limited powers. If a piece of research, the design of which was unethical, has been done, the editor cannot turn back the clock and prevent it from having been done. However, there are some forms of ethical misconduct such as plagiarism which the editor can actually prevent. So I think editors need to be aware of all the possible forms of research misconduct, but at the same time they should realize that they may not be able to control them all.

Therefore, when we begin to think in terms of duties and norms, one might ask “Who in the publication process has ethical duties?” Well, a simple answer is everybody. Authors and researchers most definitely do, so do the editors. But we should not forget the peer reviewers who have duties of confidentiality; the publishers who have to balance their commercial interests with the ethical and academic interests and the concept of intellectual freedom. And I would argue that even readers too, even if they have not published anything. As a reader you have an ethical duty. If you spot something which you believe is unethical, you have a duty to contact the journal and alert the editor to that.

In terms of who or what could get hurt, we can draw lessons from the medical field since many of the early work on publication ethics sprung from the medical journals because of the obvious link between the potential harm that could be done by a medical paper that was incorrect or misleading and the direct effect that it might have on health care, on patients, and on health policy. But I believe it is important to realize that it is not just the medical papers that could have a bad effect: in engineering, a bridge could fall down; we heard already in this conference about climate change and issues on the environment. Academic publications do not just stay in a small, narrow academic sphere, they do have societal impact and therefore we need to think about that. The most direct effect though that people probably think about, first and foremost, is the other members of the research community who might get hurt especially, if a peer review process is unfair or if authorship is not allocated properly. But there is really a whole wide range of people who could get hurt because of unethical practices.

There is an array of ethical principles we can refer to that might help us. In terms of equity or fairness, we need to focus on the peer reviewed journals, because

they are an important vehicle for research reporting and editors of such journals have important responsibilities for maintaining the quality and integrity of the research record, especially in ensuring proper peer review processes. We also need to pay attention to the allocation of both credit and responsibility in terms of authorship; the principles of honesty, transparency, of making sure that conflicts of interest, if they exist are fully declared, and of not doing any harm “*primum non nocere*.”

Editors too have multiple accountabilities and responsibilities. A journal editor is accountable to the readers, to authors and also to the wider society. Editors should adopt policies and practices that act as deterrents against or help to detect misconduct. They are bound by principles some of which I have already mentioned; e.g. the idea of editorial independence, confidentiality which is an important part of a peer review process. In some fields, some disciplines, and perhaps also in some cultures, the idea of anonymous reviewing is still very important because that allows people to really speak their ideas freely without fear of the consequences. Safeguarding confidentiality is also important, so that the peer reviewer does not steal or plagiarize the author’s ideas.

Furthermore, editors should encourage transparency to make sure that funding sources and other financial interests and potential conflicts are declared. They should also encourage honesty. I have to say that peer review and publications rely to a great extent on trust. Journal editors do not require the raw data, neither do they go to look at laboratory notebooks. There is a great deal of trust, and therefore, honesty is required. Perhaps this is more a principle of science rather than of ethics, with the idea that scientists should not fabricate, falsify or misrepresent data or results and at the same time promote openness to new ideas, new methods and new people. Journal publications should engender debate and discussion in the scientific community and journal editors need to respond positively to criticisms in order to foster cooperation and trust for the advancement of science.

I mentioned already the idea of equity and ensuring that the peer review process is fair. In carrying out these responsibilities, editors also wield a great deal of power. I was in the first parallel session this morning where there were some very interesting talks about measuring research output in terms of publications. When we put pressure on researchers to publish a great deal, there should be some safeguards on unintended consequences. And the editor carries the power of deciding if your paper gets published or not, to which may depend whether you get a pay raise, whether you get a promotion, whether you get the next appointment. So with power comes responsibility and I believe this is the whole basis of the publication ethics. Furthermore, journal editors have a great responsibility of thinking about misconduct and actually pursuing it. Journal editors are very often the first people to

see the evidence of misconduct and they really do need to pursue that and make sure they have the systems in place so they can detect it.

I would like to just introduce some standards to you which are going to be published shortly. They were developed last year at the 2nd World Congress on Research Integrity which was held in Singapore. These guidelines were developed with inputs from a whole range of editors, from a very wide range of disciplines, not just the scientists but also those in the fields of the humanities, the liberal arts, and so on, and also from editors coming from many parts of the world. So we really were aiming for universality. They are going to be in the conference proceedings of this world conference, and they will be published under creative common license. And I am actually very glad that they will be in the conference proceedings of this conference as well. So you will be able to read them, and they will also be in the COPE website.

I would like to run briefly through these principles. We set out two sets of guidelines: one for editors and one for authors. And so our proposals for the standards for editors: The first one, that editors should take responsibility for everything they publish; that they should ensure a fair and appropriate peer review process and adopt policies that encourage transparency and complete and honest reporting; that they should guard the integrity of the published record. Something I have not touched on so far but I think is an important societal responsibility. If you have published something and it turns out to be unreliable, or flawed for whatever reason, whether it is an honest error, a misconduct or fraud, you have a duty to correct that or retract it. And I notice this is something journal editors are sometimes reluctant to do which is actually very important.

Editors should pursue both reviewer and author on editorial misconduct and even perhaps among the editorial board. They should be looking at the ethics of studies. We know they cannot turn back the clock. But if an unethical study does happened they cannot prevent that, but they should be setting a high standard requiring good ethical review, requiring proper ethical design of studies in particular those involving either humans or animals or any study that can have impact on society.

Lastly, we felt that editors should disclose their own conflict of interest. Most academic editors fulfill their editorial duties part-time, in addition to their regular job, and may receive minimal support from the journal's publisher or owner. They may also be current researchers. They will have relationships including financial relationships. And it is important that they disclose this transparently, as well as

requiring both reviewers and authors do the same. And with that in mind, we have set out some suggested standards for authors in terms of reporting their research in ethical, responsible manner. presenting both the results and the methods, clearly and honestly; making sure that the work is original, not plagiarized, has not been published elsewhere; accurately reflect the contributions and attribute that correctly disclose the sources of conflict of interest.

Peer reviewed journals are in a very interesting position. While journals, and their editors, can contribute to integrity in reporting, they may also contribute to misconduct. For example, reviewers may be biased, may not disclose competing interests or may seek to delay publications by rivals or even plagiarize. Similarly, editors may abuse their position, exhibit bias, publish their own work without proper review, or fail to disclose competing interests. Lastly, publishers and journal owners such as academic societies may interfere with editorial decisions for commercial or political reasons.

There are some special considerations that apply to academic journals. I already mentioned that most journal editors are part time and they rarely receive any training in such issues. They are doing their role, a very difficult role, which sometimes involves making judgment in a hurry, very often late at night fitting it around their day job. They probably have great experience as authors, may have acted as reviewers but they have never acted as editors before. And that is partly why COPE was founded as a self-help group to help the editors. Peer reviewers are volunteers not bound by contracts. Journal ownership is also very often quite complex and multi-layered. These may well be an academic society or a commercial or not-for-profit publisher. This only shows that relationships in publications are really quite complex.

So there are specific problems. And we would hope that journal editors see this as a very important part of their role. But oddly, some research that I did a couple of years ago, indicate that such is not the case. We did a survey of 231 journal editors and we questioned them about 16 specific ethical issues such as redundancy, plagiarism, conflicts of interest, reviewer misconduct, authorship problems etc., and asked, "How frequent and how severe were those problems at their own journal?". The thing is, when you talk to editors and you say, "What about plagiarism?", they would say "It is a very serious problem." And when asked if it is a problem in their own journals, their answer is no! It always happens somewhere else. It always seems to be somebody else's problem. And I find it quite startling that around 20% of editors who responded to the research claim that 12 out of the 16 problems never occurred at their journals which is hard to believe. I do not think they are looking hard enough. So, we cannot always trust the journal editors. They need further training.

And why is such the case? Although it is hard to measure, misconduct is actually more common than we might imagine. In a Systematic Review and Meta-Analysis of Survey Data (3,207 papers; 18 studies) on how many scientists fabricate and falsify research, published in PLoS One, Daniele Fanelli reported that overall 2% of scientists admitted to have fabricated, falsified or modified data or results at least once which is a serious form of misconduct and not the more minor crimes like “gift” authorship or redundant publication. It was not even plagiarism. And the other interesting thing is, it is always somebody else’s doing it, 14% of those surveyed were aware of misconduct by colleagues. In terms of how often misconduct is detected, these are rather crude measures, but the estimate on the frequency of serious misconduct, including plagiarism, is near 1%. When the Journal of Cell Biology started to screen digital images, 1% of submitted papers had been improperly manipulated. Where the image is the data this is really a form of fabrication or falsification. Similarly, in the US, the Food and Drug Administration looked to the number of people and investigators the agency is funding. And they found around 2% were guilty of serious scientific misconduct.

At this point, I would like to raise some current issues in publication ethics. We now have this sensitive tool of text-matching software. Through it we now realize that text recycling, redundant publication, plagiarisms, self-plagiarism are more common than we thought they were. And this is making us redefine our values. So what constitutes plagiarism? Is it a 6-word string? Is it a whole paragraph? Is it an attributed reference, etc? And I already mentioned image manipulation which did not exist before photoshop and did not occur until 20 years ago. Also the question of what constitutes publication, e.g. re-prints, on-line proofs, webcasts, may sound a bit obtrusive, but it is actually quite important. Authorship is another significant issue. We are now in an era of big science. Some of the physics projects can involve hundreds or even thousands of authors. So the question of authorship is really critical especially when authorship is academic currency. And lastly, there are concerns about litigation and legal issues about retraction as well.

Several organizations exist to help editors and to promote good practice in publication. These include the Committee on Publication Ethics (COPE) which I chair, the Council of Science Editors (CSE), and the World Association of Medical Editors (WAME). COPE is unique in focusing solely on publication ethics and also encompassing all academic fields (not just science or medicine). It has published a Code of Conduct for editors, which it expects its members to follow, and Best Practice guidelines, which set more aspirational targets. To help editors follow the code, it has also produced a series of flowcharts covering the most common ethical

issues such as redundant publication, suspected plagiarism, reviewer misconduct, unethical research and authorship problems. It has also produced specific guidance on topics such as retraction. These are freely available on the COPE website (www.publicationethics.org).

For questions that cannot be answered by the flowcharts or guidance documents, COPE provides a quarterly forum for members to discuss anonymous cases. COPE does not investigate cases nor provide formal adjudication but provides informal advice based on cases presented by journal editors or publishers. After discussion, the cases, the advice from the meeting, and a report on the outcome (if provided by the editor) are entered into a searchable database that now contains over 400 cases.

COPE was founded by the editors of several prominent British biomedical journals but now has over 6500 members from all over the world and from a wide range of academic fields. We have therefore been reviewing and revising our documents and guidance to ensure they are applicable across all disciplines and regions. While the main Forum meetings still take place in London, members can present cases via phone, and we have also held a forum in Singapore (associated with the World Conference on Research Integrity) and in the USA. In 2011, meetings are planned in the USA, Australia and Iran.

COPE's guidance appears to be widely appreciated by editors and publishers. The flowcharts have been translated into several languages including Chinese, Japanese, Italian, Korean, Portuguese, Spanish, and Turkish. We have recently launched a distance learning package for members, a short guide to publication ethics for new editors, and a code of conduct for publishers. We hope that these, and other initiatives, will ensure that editors and publishers of academic journals can meet their important responsibilities and become increasingly effective in preventing, detecting and responding to research and publication misconduct.

Developing International Standards for Authors and Editors

Another recent COPE activity has been to coordinate the development of position papers on responsible research publication providing guidance for authors and editors. These position statements were developed at the 2nd World Conference on Research Integrity, held in Singapore in July 2010.

The two statements were originally drafted by me and Sabine Kleinert, the Vice-Chair of COPE. These drafts were circulated before the meeting, discussed

with the invited speakers, and revised to reflect these discussions. At the meeting in Singapore, the revised draft documents were presented and discussed in two sessions and further refined during a one-day, post-conference workshop. Both statements were then reworked to reflect the discussions in Singapore and circulated to those who had participated in the sessions and to members of the COPE Council and the International Council for Science (ICSU). However, while we hope such organizations may endorse the statements, they are primarily based on the views of participants at the Singapore meeting and therefore do not necessarily represent the official views of any of the participating organizations or the individuals' institutions.

While some differences in publishing conventions exist between fields, it was evident from the discussion that there is much common ground and also a desire to raise standards in the reporting of research. The two documents therefore aim to establish standards for authors and editors of scholarly research publications and to describe responsible research reporting and publishing practice. Given the special issues raised by research involving humans or animals, which may not apply to other types of research, both statements include a specific section on these. We hope the statements will be endorsed by research institutions, funders, professional societies, and publishers.

While it would be impossible to reflect the views of all researchers and editors, we were pleased to involve participants and reviewers from a wide range of academic fields including biology, forestry, earth sciences, the humanities, mathematics, medicine, philosophy, and political science. The Singapore meeting also brought together participants from Africa, Asia, Australasia, Europe, the Middle East, and North America. We hope the versions presented here reflect the lively debate that took place before, during and after the meeting. We offer these documents as the first step in a process aimed at improving the reporting and publication of research and hope the statements will be reviewed and revised, as necessary, at future meetings.

I would like to leave you with a vision for the future... that we will have a better world if we have cooperation between journals and institutions. I hope that we can educate journal editors as well as authors and train young researchers on research integrity and publication ethics. People are not telepathic. You cannot expect them to behave in the way you would want them to. It is very important at university level that we educate people in these principles.

Let me end with an old quotation from Plutarch which emphasizes what I said "The very spring and root of honesty and virtue lie in good education."■

Annex I

Responsible Research Publication: International Standards for Authors

Elizabeth Wager & Sabine Kleinert

Introduction

Publication is the final stage of research and therefore a responsibility for all researchers. Scholarly publications are expected to provide a detailed and permanent record of research. Because publications form the basis for both new research and the application of findings, they can affect not only the research community but also, indirectly, society at large. Researchers therefore have a responsibility to ensure that their publications are honest, clear, accurate, complete and balanced, and should avoid misleading, selective or ambiguous reporting. Journal editors also have responsibilities for ensuring the integrity of the research literature and these are set out in companion guidelines.

This document aims to establish international standards for authors of scholarly research publications and to describe responsible research reporting practice. We hope these standards will be endorsed by research institutions, funders, and professional societies; promoted by editors and publishers; and will aid in research integrity training.

Responsible Research Publication

1. Soundness and reliability

1.1 The research being reported should have been conducted in an ethical and responsible manner and follow all relevant legislation. *[See also the Singapore Statement on Research Integrity, www.singaporestatement.org]*

1.2 The research being reported should be sound and carefully executed.

A position statement developed at the 2nd World Conference on Research Integrity, Singapore, July 22-24, 2010.

First published in *Promoting Research Integrity on a Global Basis*, Mayer T & Steneck N eds, World Scientific Publishing / Imperial College Press, Singapore, 2011.

- 1.3 Researchers should use appropriate methods of data analysis and display (and, if needed, seek and follow specialist advice on this).
- 1.4 Authors should take collective responsibility for their work and for the content of their publications. Researchers should check their publications carefully at all stages to ensure methods and findings are reported accurately. Authors should carefully check calculations, data presentations, typescripts/submissions and proofs.

2. *Honesty*

- 2.1 Researchers should present their results honestly and without fabrication, falsification or inappropriate data manipulation. Research images (e.g. micrographs, X-rays, pictures of electrophoresis gels) should not be modified in a misleading way.
- 2.2 Researchers should strive to describe their methods and to present their findings clearly and unambiguously. Researchers should follow applicable reporting guidelines. Publications should provide sufficient detail to permit experiments to be repeated by other researchers.
- 2.3 Reports of research should be complete. They should not omit inconvenient, inconsistent or inexplicable findings or results that do not support the authors' or sponsors' hypothesis or interpretation.
- 2.4 Research funders and sponsors should not be able to veto publication of findings that do not favour their product or position. Researchers should not enter agreements that permit the research sponsor to veto or control the publication of the findings (unless there are exceptional circumstances, such as research classified by governments because of security implications).
- 2.5 Authors should alert the editor promptly if they discover an error in any submitted, accepted or published work. Authors should cooperate with editors in issuing corrections or retractions when required.
- 2.6 Authors should represent the work of others accurately in citations and quotations.
- 2.7 Authors should not copy references from other publications if they have not read the cited work.

3. *Balance*

- 3.1 New findings should be presented in the context of previous research. The work of others should be fairly represented. Scholarly reviews and syntheses of existing research should be complete, balanced, and should include findings regardless of whether they support the hypothesis or interpretation being proposed. Editorials or opinion pieces presenting a single viewpoint or argument should be clearly distinguished from scholarly reviews.
- 3.2 Study limitations should be addressed in publications.

4. *Originality*

- 4.1 Authors should adhere to publication requirements that submitted work is original and has not been published elsewhere in any language. Work should not be submitted concurrently to more than one publication unless the editors have agreed to co-publication. If articles are co-published this fact should be made clear to readers.
- 4.2 Applicable copyright laws and conventions should be followed. Copyright material (e.g. tables, figures or extensive quotations) should be reproduced only with appropriate permission and acknowledgement.
- 4.3 Relevant previous work and publications, both by other researchers and the authors' own, should be properly acknowledged and referenced. The primary literature should be cited where possible.
- 4.4 Data, text, figures or ideas originated by other researchers should be properly acknowledged and should not be presented as if they were the authors' own. Original wording taken directly from publications by other researchers should appear in quotation marks with the appropriate citations.
- 4.5 Authors should inform editors if findings have been published previously or if multiple reports or multiple analyses of a single data set are under consideration for publication elsewhere. Authors should provide copies of related publications or work submitted to other journals.
- 4.6 Multiple publications arising from a single research project should be clearly identified as such and the primary publication should be referenced. Translations and adaptations for different audiences should

be clearly identified as such, should acknowledge the original source, and should respect relevant copyright conventions and permission requirements. If in doubt, authors should seek permission from the original publisher before republishing any work.

5. *Transparency*

- 5.1 All sources of research funding, including direct and indirect financial support, supply of equipment or materials, and other support (such as specialist statistical or writing assistance) should be disclosed.
- 5.2 Authors should disclose the role of the research funder(s) or sponsor (if any) in the research design, execution, analysis, interpretation and reporting.
- 5.3 Authors should disclose relevant financial and non-financial interests and relationships that might be considered likely to affect the interpretation of their findings or which editors, reviewers or readers might reasonably wish to know. This includes any relationship to the journal, for example if editors publish their own research in their own journal. In addition, authors should follow journal and institutional requirements for disclosing competing interests.

6. *Appropriate authorship and acknowledgement*

- 6.1 The research literature serves as a record not only of what has been discovered but also of who made the discovery. The authorship of research publications should therefore accurately reflect individuals' contributions to the work and its reporting.
- 6.2 In cases where major contributors are listed as authors while those who made less substantial, or purely technical, contributions to the research or to the publication are listed in an acknowledgement section, the criteria for authorship and acknowledgement should be agreed at the start of the project. Ideally, authorship criteria within a particular field should be agreed, published and consistently applied by research institutions, professional and academic societies, and funders. While journal editors should publish and promote accepted authorship criteria appropriate to their field, they cannot be expected to adjudicate in authorship disputes. Responsibility for the correct attribution of authorship lies with authors themselves working under the guidance of their institution. Research

institutions should promote and uphold fair and accepted standards of authorship and acknowledgement. When required, institutions should adjudicate in authorship disputes and should ensure that due process is followed.

- 6.3 Researchers should ensure that only those individuals who meet authorship criteria (i.e. made a substantial contribution to the work) are rewarded with authorship and that deserving authors are not omitted. Institutions and journal editors should encourage practices that prevent guest, gift, and ghost authorship.
- 6.4 All authors should agree to be listed and should approve the submitted and accepted versions of the publication. Any change to the author list should be approved by all authors including any who have been removed from the list. The corresponding author should act as a point of contact between the editor and the other authors and should keep co-authors informed and involve them in major decisions about the publication (e.g. responding to reviewers' comments).
- 6.5 Authors should not use acknowledgements misleadingly to imply a contribution or endorsement by individuals who have not, in fact, been involved with the work or given an endorsement.

7. *Accountability and responsibility*

- 7.1 All authors should have read and be familiar with the reported work and should ensure that publications follow the principles set out in these guidelines. In most cases, authors will be expected to take joint responsibility for the integrity of the research and its reporting. However, if authors take responsibility only for certain aspects of the research and its reporting, this should be specified in the publication.
- 7.2 Authors should work with the editor or publisher to correct their work promptly if errors or omissions are discovered after publication.
- 7.3 Authors should abide by relevant conventions, requirements, and regulations to make materials, reagents, software or datasets available to other researchers who request them. Researchers, institutions, and funders should have clear policies for handling such requests. Authors must also follow relevant journal standards. While proper acknowledgement is expected, researchers should not demand authorship as a condition for sharing materials.

7.4 Authors should respond appropriately to post-publication comments and published correspondence. They should attempt to answer correspondents' questions and supply clarification or additional details where needed.

8. *Adherence to peer review and publication conventions*

8.1 Authors should follow publishers' requirements that work is not submitted to more than one publication for consideration at the same time.

8.2 Authors should inform the editor if they withdraw their work from review, or choose not to respond to reviewer comments after receiving a conditional acceptance.

8.3 Authors should respond to reviewers' comments in a professional and timely manner.

8.4 Authors should respect publishers' requests for press embargos and should not generally allow their findings to be reported in the press if they have been accepted for publication (but not yet published) in a scholarly publication. Authors and their institutions should liaise and cooperate with publishers to coordinate media activity (e.g. press releases and press conferences) around publication. Press releases should accurately reflect the work and should not include statements that go further than the research findings.

9. *Responsible reporting of research involving humans or animals*

9.1 Appropriate approval, licensing or registration should be obtained before the research begins and details should be provided in the report (e.g. Institutional Review Board, Research Ethics Committee approval, national licensing authorities for the use of animals).

9.2 If requested by editors, authors should supply evidence that reported research received the appropriate approval and was carried out ethically (e.g. copies of approvals, licences, participant consent forms).

9.3 Researchers should not generally publish or share identifiable individual data collected in the course of research without specific consent from the individual (or their representative). Researchers should remember that many scholarly journals are now freely available on the internet, and should therefore be mindful of the risk of causing danger or upset

to unintended readers (e.g. research participants or their families who recognise themselves from case studies, descriptions, images or pedigrees).

- 9.4 The appropriate statistical analyses should be determined at the start of the study and a data analysis plan for the prespecified outcomes should be prepared and followed. Secondary or *post hoc* analyses should be distinguished from primary analyses and those set out in the data analysis plan.
- 9.5 Researchers should publish all meaningful research results that might contribute to understanding. In particular, there is an ethical responsibility to publish the findings of all clinical trials. The publication of unsuccessful studies or experiments that reject a hypothesis may help prevent others from wasting time and resources on similar projects. If findings from small studies and those that fail to reach statistically significant results can be combined to produce more useful information (e.g. by meta-analysis) then such findings should be published.
- 9.6 Authors should supply research protocols to journal editors if requested (e.g. for clinical trials) so that reviewers and editors can compare the research report to the protocol to check that it was carried out as planned and that no relevant details have been omitted. Researchers should follow relevant requirements for clinical trial registration and should include the trial registration number in all publications arising from the trial.■

Annex II

Responsible Research Publication: International Standards for Editors

Introduction

As guardians and stewards of the research record, editors should encourage authors to strive for, and adhere themselves to, the highest standards of publication ethics. Furthermore, editors are in a unique position to indirectly foster responsible conduct of research through their policies and processes. To achieve the maximum

effect within the research community, ideally all editors should adhere to universal standards and good practices. While there are important differences between different fields and not all areas covered are relevant to each research community, there are important common editorial policies, processes, and principles that editors should follow to ensure the integrity of the research record.

These guidelines are a starting point and are aimed at journal editors in particular. While books and monographs are important and relevant research records in many fields, guidelines for book editors are beyond the scope of these recommendations. It is hoped that in due course such guidelines can be added to this document.

Editors should regard themselves as part of the wider professional editorial community, keep themselves abreast of relevant policies and developments, and ensure their editorial staff is trained and kept informed of relevant issues.

To be a good editor requires many more principles than are covered here. These suggested principles, policies, and processes are particularly aimed at fostering research and publication integrity.

Editorial Principles

1. Accountability and responsibility for journal content

Editors have to take responsibility for everything they publish and should have procedures and policies in place to ensure the quality of the material they publish and maintain the integrity of the published record (see paragraphs 4-8).

2. Editorial independence and integrity

An important part of the responsibility to make fair and unbiased decisions is the upholding of the principle of editorial independence and integrity.

2.1 Separating decision-making from commercial considerations

Editors should make decisions on academic merit alone and take full responsibility for their decisions. Processes must be in place to separate commercial activities within a journal from editorial processes and decisions. Editors should take an active interest in the publisher's pricing policies and strive for wide and affordable accessibility of the material they publish.

Sponsored supplements must undergo the same rigorous quality control and peer review as any other content for the journal. Decisions on such material must be made in the same way as any other journal content. The sponsorship and role of the sponsor must be clearly declared to readers.

Advertisements need to be checked so that they follow journal guidelines, should be clearly distinguishable from other content, and should not in any way be linked to scholarly content.

2.2 Editors' relationship to the journal publisher or owner

Editors should ideally have a written contract setting out the terms and conditions of their appointment with the journal publisher or owner. The principle of editorial independence should be clearly stated in this contract. Journal publishers and owners should not have any role in decisions on content for commercial or political reasons. Publishers should not dismiss an editor because of any journal content unless there was gross editorial misconduct or an independent investigation has concluded that the editor's decision to publish was against the journal's scholarly mission.

2.3 Journal metrics and decision-making

Editors should not attempt to inappropriately influence their journal's ranking by artificially increasing any journal metric. For example, it is inappropriate to demand that references to that journal's articles are included except for genuine scholarly reasons. In general, editors should ensure that papers are reviewed on purely scholarly grounds and that authors are not pressured to cite specific publications for non-scholarly reasons.

3. Editorial confidentiality

3.1 Authors' material

If a journal operates a system where peer reviewers are chosen by editors (rather than posting papers for all to comment as a pre-print version), editors must protect the confidentiality of authors' material and remind reviewers to do so as well. In general, editors should not share submitted papers with editors of other journals, unless with the

authors' agreement or in cases of alleged misconduct (see below). Editors are generally under no obligation to provide material to lawyers for court cases. Editors should not give any indication of a paper's status with the journal to anyone other than the authors. Web-based submission systems must be run in a way that prevents unauthorised access.

In the case of a misconduct investigation, it may be necessary to disclose material to third parties (e.g., an institutional investigation committee or other editors).

3.2 Reviewers

Editors should protect reviewers' identities unless operating an open peer review system. However, if reviewers wish to disclose their names, this should be permitted. If there is alleged or suspected reviewer misconduct it may be necessary to disclose a reviewer's name to a third party.

General Editorial Policies

4. *Encourage maximum transparency and complete and honest reporting*

To advance knowledge in scholarly fields, it is important to understand why particular work was done, how it was planned and conducted and by whom, and what it adds to current knowledge. To achieve this understanding, maximum transparency and complete and honest reporting are crucial.

4.1 *Authorship and responsibility*

Journals should have a clear policy on authorship that follows the standards within the relevant field. They should give guidance in their information for authors on what is expected of an author and, if there are different authorship conventions within a field, they should state which they adhere to.

For multidisciplinary and collaborative research, it should be apparent to readers who has done what and who takes responsibility for the conduct and validity of which aspect of the research. Each part of the work should have at least one author who takes responsibility for its validity. For example, individual contributions and responsibilities

could be stated in a contributor section. All authors are expected to have contributed significantly to the paper and to be familiar with its entire content and ideally, this should be declared in an authorship statement submitted to the journal.

When there are undisputed changes in authorship for appropriate reasons, editors should require that all authors (including any whose names are being removed from an author list) agree these in writing. Authorship disputes (i.e., disagreements on who should or should not be an author before or after publication) cannot be adjudicated by editors and should be resolved at institutional level or through other appropriate independent bodies for both published and unpublished papers. Editors should then act on the findings, for example by correcting authorship in published papers.

Journals should have a publicly declared policy on how papers submitted by editors or editorial board members are handled (see paragraph on editorial conflicts of interest: 8.2).

4.2 Conflicts of interest and role of the funding source

Editors should have policies that require all authors to declare any relevant financial and non-financial conflicts of interest and publish at least those that might influence a reader's perception of a paper, alongside the paper. The funding source of the research should be declared and published, and the role of the funding source in the conception, conduct, analysis, and reporting of the research should be stated and published.

Editors should make it clear in their information for authors if in certain sections of the journal (e.g., commissioned commentaries or review articles) certain conflicts of interest preclude authorship.

4.3 Full and honest reporting and adherence to reporting guidelines

Among the most important responsibilities of editors is to maintain a high standard in the scholarly literature. Although standards differ among journals, editors should work to ensure that all published papers make a substantial new contribution to their field. Editors should discourage so-called 'salami publications' (i.e., publication of the minimum publishable unit of research), avoid duplicate or redundant publication unless it is fully declared and acceptable to all

(e.g., publication in a different language with cross-referencing), and encourage authors to place their work in the context of previous work (i.e., to state why this work was necessary/done, what this work adds or why a replication of previous work was required, and what readers should take away from it).

Journals should adopt policies that encourage full and honest reporting, for example, by requiring authors in fields where it is standard to submit protocols or study plans, and, where they exist, to provide evidence of adherence to relevant reporting guidelines. Although devised to improve reporting, adherence to reporting guidelines also makes it easier for editors, reviewers, and readers to judge the actual conduct of the research.

Digital image files, figures, and tables should adhere to the appropriate standards in the field. Images should not be inappropriately altered from the original or present findings in a misleading way.

Editors might also consider screening for plagiarism, duplicate or redundant publication by using anti-plagiarism software, or for image manipulation. If plagiarism or fraudulent image manipulation is detected, this should be pursued with the authors and relevant institutions (see paragraph on how to handle misconduct: 5.2)

5. *Responding to criticisms and concerns*

Reaction and response to published research by other researchers is an important part of scholarly debate in most fields and should generally be encouraged. In some fields, journals can facilitate this debate by publishing readers' responses. Criticisms may be part of a general scholarly debate but can also highlight transgressions of research or publication integrity.

5.1 *Ensuring integrity of the published record - corrections*

When genuine errors in published work are pointed out by readers, authors, or editors, which do not render the work invalid, a correction (or erratum) should be published as soon as possible. The online version of the paper may be corrected with a date of correction and a link to the printed erratum. If the error renders the work or substantial parts of it invalid, the paper should be retracted with an explanation as to the reason for retraction (i.e., honest error).

5.2 *Ensuring the integrity of the published record – suspected research or publication misconduct*

If serious concerns are raised by readers, reviewers, or others, about the conduct, validity, or reporting of academic work, editors should initially contact the authors (ideally all authors) and allow them to respond to the concerns. If that response is unsatisfactory, editors should take this to the institutional level (see below). In rare cases, mostly in the biomedical field, when concerns are very serious and the published work is likely to influence clinical practice or public health, editors should consider informing readers about these concerns, for example by issuing an ‘expression of concern’, while the investigation is ongoing. Once an investigation is concluded, the appropriate action needs to be taken by editors with an accompanying comment that explains the findings of the investigation. Editors should also respond to findings from national research integrity organisations that indicate misconduct relating to a paper published in their journal. Editors can themselves decide to retract a paper if they are convinced that serious misconduct has happened even if an investigation by an institution or national body does not recommend it.

Editors should respond to all allegations or suspicions of research or publication misconduct raised by readers, reviewers, or other editors. Editors are often the first recipients of information about such concerns and should act, even in the case of a paper that has not been accepted or has already been rejected. Beyond the specific responsibility for their journal’s publications, editors have a collective responsibility for the research record and should act whenever they become aware of potential misconduct if at all possible. Cases of possible plagiarism or duplicate/redundant publication can be assessed by editors themselves. However, in most other cases, editors should request an investigation by the institution or other appropriate bodies (after seeking an explanation from the authors first and if that explanation is unsatisfactory).

Retracted papers should be retained online, and they should be prominently marked as a retraction in all online versions, including the PDF, for the benefit of future readers.

For further guidance on specific allegations and suggested actions, such as retractions, see the COPE flowcharts and retraction guidelines

(<http://publicationethics.org/flowcharts>; http://publicationethics.org/files/u661/Retractions_COPE_gline_final_3_Sept_09__2_.pdf).

5.3 *Encourage scholarly debate*

All journals should consider the best mechanism by which readers can discuss papers, voice criticisms, and add to the debate (in many fields this is done via a print or on-line correspondence section). Authors may contribute to the debate by being allowed to respond to comments and criticisms where relevant. Such scholarly debate about published work should happen in a timely manner. Editors should clearly distinguish between criticisms of the limitations of a study and criticisms that raise the possibility of research misconduct. Any criticisms that raise the possibility of misconduct should not just be published but should be further investigated even if they are received a long time after publication.

Editorial policies relevant only to journals that publish research in humans or animals

6. *Critically assess and require a high standard of ethical conduct of research*

Especially in biomedical research but also in social sciences and humanities, ethical conduct of research is paramount in the protection of humans and animals. Ethical oversight, appropriate consent procedures, and adherence to relevant laws are required from authors. Editors need to be vigilant to concerns in this area.

6.1 *Ethics approval and ethical conduct*

Editors should generally require approval of a study by an ethics committee (or institutional review board) and the assurance that it was conducted according to the Declaration of Helsinki for medical research in humans but, in addition, should be alert to areas of concern in the ethical conduct of research. This may mean that a paper is sent to peer reviewers with particular expertise in this area, to the journal's ethics committee if there is one, or that editors require further reassurances or evidence from authors or their institutions.

Papers may be rejected on ethical grounds even if the research had ethics committee approval.

6.2 *Consent (to take part in research)*

If research is done in humans, editors should ensure that a statement on the consent procedure is included in the paper. In most cases, written informed consent is the required norm. If there is any concern about the consent procedure, if the research is done in vulnerable groups, or if there are doubts about the ethical conduct, editors should ask to see the consent form and enquire further from authors, exactly how consent was obtained.

6.3 *Consent (for publication)*

For all case reports, small case series, and images of people, editors should require the authors to have obtained explicit consent for publication (which is different from consent to take part in research). This consent should inform participants which journal the work will be published in, make it clear that, although all efforts will be made to remove unnecessary identifiers, complete anonymity is not possible, and ideally state that the person described has seen and agreed with the submitted paper. The signed consent form should be kept with the patient file rather than sent to the journal (to maximise data protection and confidentiality, see paragraph 6.4). There may be exceptions where it is not possible to obtain consent, for example when the person has died. In such cases, a careful consideration about possible harm is needed and out of courtesy attempts should be made to obtain assent from relatives. In very rare cases, an important public health message may justify publication without consent if it is not possible despite all efforts to obtain consent and the benefit of publication outweighs the possible harm.

6.4 *Data protection and confidentiality*

Editors should critically assess any potential breaches of data protection and patient confidentiality. This includes requiring properly informed consent for the actual research presented, consent for publication where applicable (see paragraph 6.3), and having editorial policies that comply with guidelines on patient confidentiality.

6.5 *Adherence to relevant laws and best practice guidelines for ethical conduct*

Editors should require authors to adhere to relevant national and international laws and best practice guidelines where applicable, for example when undertaking animal research. Editors should encourage registration of clinical trials.

Editorial Processes

7. *Ensuring a fair and appropriate peer review process*

One of the most important responsibilities of editors is organising and using peer review fairly and wisely. Editors should explain their peer review processes in the information for authors and also indicate which parts of the journal are peer reviewed.

7.1 *Decision whether to review*

Editors may reject a paper without peer review when it is deemed unsuitable for the journal's readers or is of poor quality. This decision should be made in a fair and unbiased way. The criteria used to make this decision should be made explicit. The decision not to send a paper for peer review should only be based on the academic content of the paper, and should not be influenced by the nature of the authors or the host institution.

7.2 *Interaction with peer reviewers*

Editors should use appropriate peer reviewers for papers that are considered for publication by selecting people with sufficient expertise and avoiding those with conflicts of interest. Editors should ensure that reviews are received in a timely manner.

Peer reviewers should be told what is expected of them and should be informed about any changes in editorial policies. In particular, peer reviewers should be asked to assess research and publication ethics issues (i.e., whether they think the research was done and reported ethically, or if they have any suspicions of plagiarism, fabrication, falsification, or redundant publication). Editors should have a policy to request a formal conflict of interest declaration from peer reviewers and should ask peer reviewers to inform them about any such conflict of interest at the earliest opportunity so that they can make a decision

on whether an unbiased review is possible. Certain conflicts of interest may disqualify a peer reviewer. Editors should stress confidentiality of the material to peer reviewers and should require peer reviewers to inform them when they ask a colleague for help with a review or if they mentor a more junior colleague in conducting peer review. Editors should ideally have a mechanism to monitor the quality and timeliness of peer review and to provide feedback to reviewers.

7.3 *Reviewer misconduct*

Editors must take reviewer misconduct seriously and pursue any allegation of breach of confidentiality, non-declaration of conflicts of interest (financial or non-financial), inappropriate use of confidential material, or delay of peer review for competitive advantage. Allegations of serious reviewer misconduct, such as plagiarism, should be taken to the institutional level (for further guidance see: http://publicationethics.org/files/u2/07_Reviewer_misconduct.pdf).

7.4 *Interaction with authors*

Editors should make it clear to authors what the role of the peer reviewer is because this may vary from journal to journal. Some editors regard peer reviewers as advisors and may not necessarily follow (or even ask for) reviewers' recommendations on acceptance or rejection. Correspondence from editors is usually with the corresponding author, who should guarantee to involve co-authors at all stages. Communicating with all authors at first submission and at final acceptance stage can be helpful to ensure all authors are aware of the submission and have approved the publication. Normally, editors should pass on all peer reviewers' comments in their entirety. However, in exceptional cases, it may be necessary to exclude parts of a review, if it, for example, contains libellous or offensive remarks. It is important, however, that such editorial discretion is not inappropriately used to suppress inconvenient comments.

There should always be good reasons, which are clearly communicated to authors, if additional reviewers are sought at a late stage in the process.

The final editorial decision and reasons for this should be clearly communicated to authors and reviewers. If a paper is rejected, editors should ideally have an appeals process. Editors, however, are not obliged to overturn their decision.

8. Editorial decision-making

Editors are in a powerful position by making decisions on publications, which makes it very important that this process is as fair and unbiased as possible, and is in accordance with the academic vision of the particular journal.

8.1. Editorial and journal processes

All editorial processes should be made clear in the information for authors. In particular, it should be stated what is expected of authors, which types of papers are published, and how papers are handled by the journal. All editors should be fully familiar with the journal policies, vision, and scope. The final responsibility for all decisions rests with the editor-in-chief.

8.2 Editorial conflicts of interest

Editors should not be involved in decisions about papers in which they have a conflict of interest, for example if they work or have worked in the same institution and collaborated with the authors, if they own stock in a particular company, or if they have a personal relationship with the authors. Journals should have a defined process for handling such papers. Journals should also have a process in place to handle papers submitted by editors or editorial board members to ensure unbiased and independent handling of such papers. This process should be stated in the information for authors. Editorial conflicts of interests should be declared, ideally publicly. ■



Elizabeth Wager is a freelance medical writer, editor and trainer. She chairs the Committee on Publication Ethics (COPE), an organization which aims to increase the integrity of academic journals in the U.K. She is a member of the ethics committees for the *British Medical Journal* and the World Association of Medical Editors. She has run training courses for doctors, journal editors and medical writers on five continents, including courses in China, India, Kenya, Uganda, South Africa, Australia, the USA and all around Europe. She has written a book on publication strategy and co-authored one on peer review and is a co-author of *Good Publication Practice for Pharmaceutical Companies*, the European Medical Writers Association guidelines on the role of medical writers and the Blackwell *Best Practice Guidelines on Publication Ethics*.