INTRODUCTION

Through the practice of peer review, biomedical journals operate a process of self-regulation to guard the integrity of scientific literature. This system is built upon trust: that authors have been honest, can attest to the veracity of their manuscript, and that reviewers have upheld their duty to vigorously assess the submission while being cognizant of any potential bias they may introduce during their evaluation.1

Publication ethics, unfortunately, seems to be an after thought receiving little attention compared with research conduct and patient practice ethics.2 The implications, however, are significant if readers can no longer have faith in what they read. Consequently, journals are gradually increasing their scrutiny and implementing efforts to force authors and reviewers alike to think about their actions, sometimes to the extent that these run counter to timeworn traditions.2 Each of these motivations would occupy, however, an increasingly troubling position on what

A case vignette is presented, background information on the issue is presented, and then questions for discussion are provided.

SCENARIO 1: HONORARY AUTHORSHIP

A junior researcher in submitting a brief paper to a journal has included, with consent, a senior colleague (a subject-thought leader and chairperson of their department) as a co-author. The senior colleague is familiar with the study conducted by the junior researcher, offering advice and mentorship while the study was conducted. The senior colleague also played a role in obtaining a small grant to fund the study.

The dilemma: Is this behavior acceptable practice?

Defining Authorship.—Honorary authorship has long been a tacit form of writing credit within the medical literature. The editorial team at the Journal of the American Medical Association recently reported at the 2009 International Congress on Peer Review and Biomedical Publication that 21% of papers surveyed in 6 major medical journals contained elements of honorary authorship.3 The grounds for this practice are varied, but common reasons junior faculty attach the names of senior figures include: a seemingly benign recognition of the time and advice the senior figure has given to the junior researcher; a mutual compact to inflate the publications listing on an academic curriculum vitae; an attempt to secure a less tortuous path through peer review or even an effort to improve the chances of acceptance for publication.2 Each of these motivations would occupy, however, an increasingly troubling position on what
Liz Wager defined as a spectrum of publication ethics that moves “away from good behavior.”

The problem with this practice is that it represents a misappropriation of authorship that runs contrary to an unambiguous statement from the American Psychological Association that an academic position should not automatically confer authorship. Additionally, the National Institutes of Health categorically states that advice and support alone should not constitute authorship: “Individuals who do not meet... criteria but who have assisted the research by their encouragement and advice or by providing space, financial support, reagents, occasional analyses or patient material should be acknowledged in the text but not be authors.”

Finally, the International Committee of Medical Journal Editors (ICMJE) has made the most explicit attempt to codify the criteria for authorship in their Uniform Requirements for Manuscripts Submitted to Biomedical Journals:

*Authorship credit should be based on 1) substantial contributions to conception and design, acquisition of data, or analysis and interpretation of data; 2) drafting the article or revising it critically for important intellectual content; and 3) final approval of the version to be published. Authors should meet conditions 1, 2, and 3.*

Misappropriation of Authorship.—Despite decrees from these estimable bodies, the awarding of honorific authorship credit is ingrained from the earliest stages of medical training. Evidence supports this contention. Forty-seven percent of medical dissertations by newly qualified doctors included in a study by the Swedish Medical Association contained breaches in the ICMJE authorship policy. It seems that from the very start of careers, researchers are not educated on the ethical questionable of honorary authorship. Conversely, institutionalized policies whereby departmental heads are ritually assigned as a senior author or cultural and professional hierarchical influences specific to regional contexts also undoubtedly contribute significantly to the prevalence of honorary authorship. Under such a scenario, junior colleagues as a matter of political and professional expediency abidingly assign author credit in contravention of the ICMJE guidelines. Assigning senior colleagues to a paper under duress is at best ethically nebulous and each situation has its own unique set of factors that influence author behavior. Actively conferring author status to gain favor on the other hand is, as Jones and colleagues assert, a clear misrepresentation. The blame for such behavior in that situation is shared equally between junior and senior colleagues.

It is not always the case, it should be noted, that junior faculty consciously, or unconsciously, creates the problem of honorary authorship. Another form of authorship misappropriation involves senior faculty receiving writing commissions and then passing along the responsibility of writing the commissioned article to a junior colleague. In such circumstances the junior colleague does receive credit but a small element of deception exists, particularly if a journal or book editor is only made aware of co-authorship when the manuscript is submitted and had not previously agreed to co-authorship. Most editors would probably confess to having read a sub-standard commissioned article at some point in their tenure, where it became obvious the senior editors’ contribution was minimal or even zero. This creates a politically tricky problem for a journal, particularly if an article was commissioned, as summarily rejecting an invited article is never easy and runs the risk of alienating senior figures in a field.

Problems Caused by Honorific Attribution of Authorship.—Why is honorary authorship so problematic? Inappropriate ascription of authorship can add bias to the published literature. Inclusion of a thought leader in the author byline might assign undeserved “weight” to the conclusions of a paper. It can also lead to problems when journals search for potential reviewers. In searching for prior published authors that could function as reviewers, journals may call upon authors that in reality are not experts. Ultimately, honorary authorship represents a form of deception. For some readers, if they cannot accept the validity of the authorship credit, has their faith in the
veracity of the results and conclusions within a paper been undermined?

Some journals are reacting to authorship misappropriation by adopting variations of the notion of contributorship first proposed by Rennie and colleagues in 1997 in which any named author had to describe their input into the published article.12 Take up, however, has been very slow.13 Headache has attempted to address this issue by listing author contributions at the end of each research manuscript. Our criteria for authorship are based on the ICMJE guidelines. Headache is not a pioneer title in pursuing this endeavor, but we do expect many other journals to follow suit.

Honorary authorship is an institutionalized problem within biomedical literature. If it is not commonly recognized as a problem, and too much weight is applied to the volume of publications over the actual contribution of published research to scientific advancement, it is a problem that will persist. Journals are slowly starting to shape behavior toward good practice and perhaps this will become the tipping point upon which authorship credit becomes part of the standard education in research ethics. In the meantime, junior authors should remain alert to the fact that some titles have instituted clear policies, the contravention of which may lead to varying levels of disciplinary action.14

QUESTIONS

• In Scenario 1, what approaches could the junior author take to highlight the contributions of the senior colleague?
• How might the junior colleague handle the situation if the senior colleague had applied unfair pressure for inclusion in the author byline?

SCENARIO 2: REDUCE, REUSE, AND RECYCLE—BEING AWARE OF PLAGIARISM AND AVOIDING SELF-PLAGIARISM

A reviewer, in undertaking an evaluation of a manuscript, suspects data and a figure have been published previously and asks the journal considering the submission to investigate a possible case of plagiarism. Due to a double-blinded peer review process, the reviewer is unaware that the same author has written both the prior published paper and the one under review. Further investigation for possible self-plagiarism reveals some textual similarities and the reuse of a figure without citation. Data reported appear to overlap data in the published previously paper by the author and are derived from the same study.

The dilemma: has the author overstepped an ethical boundary?

Defining Plagiarism and Self-Plagiarism.—

Plagiarism, the act of the appropriation of the words, ideas and results of others without proper credit, passed off as ones own original material, is clearly a disreputable act. The Office of Research Integrity bluntly describes plagiarism as the “theft and misappropriation of intellectual property.”15 Punishments for those that get found out are severe, indeed possibly career-ending. A more ethically nebulous concept is self-plagiarism, otherwise known as autoplagiarism. Emerging authors need to be familiar with both concepts.

Plagiarism.—Plagiarism represents serious ethical misconduct. It deceives the reader, undermines faith in the publication record and can cheat the true author out of appropriate credit. What is so surprising is how brazen plagiarizing authors can be despite the inevitability of such fraud being uncovered. Burying a plagiarized paper in an obscure journal, which tends to be the predominant method by which plagiarism is undertaken, is no guarantee that the work of deception will remain hidden.16 Plagiarism cases often see complete figures extracted from one publication and placed in another. Textual similarities range from the repetition of a selection of sentences through to the lifting of an entire article. Articles cited in the reference sections may exhibit pronounced similarity with plagiarized papers.

Regardless of the extent of content reuse, plagiarism allows an unscrupulous author to take unwarranted credit and violates the copyright of others.

Self-plagiarism.—Self-plagiarism in its broadest definition represents more than the inappropriate recycling of text. The Office of Research Integrity, in their guidelines Avoiding plagiarism, self-plagiarism,
and other questionable writing practices: A guide to ethical writing, suggests the concept includes redundant publication, “salami slicing” and copyright infringement alongside unacceptable recycling of text.

Why is self-plagiarism problematic? Ignoring the legal implications of copyright infringement for a moment, self-plagiarism is unethical simply because authors typically have to attest to the originality of their work—repetition, clearly does not equate to originality.

Redundant publication and salami slicing have both been dealt with previously in *Headache* and in the American Headache Society Journal Publication Guidelines. Redundant publication occurs when substantial overlap exists between two or more papers by the same author(s), especially in the results section or in the reuse of a table or figure without proper citation to work published previously. In its most extreme form, as Benos et al document, the difference may only be between the article title and the order of authors. Additionally, articles may sometimes be formatted differently, to reflect journal style, but redundancy is still evident. The motivation for repeating results likely stems from the pressure to publish and the need to build a lengthy publication record. More nefariously, repeat publication may also represent an attempt to elevate the profile of a study by biasing the literature. Consequently, there is a risk a study receives more attention than is appropriate.

If redundant publication constitutes reusing or recycling content, salami slicing involves unnecessarily reducing research into Minimum Publishable Units—that is, dividing content into several small papers when one would suffice. Again, the motivation for doing this is to “plump academic vitae.” As most medical journals require similar article structures, repetition is inevitable, especially in the description of methods. The difference between salami slicing and redundant publication is that the overall study results are portioned into small compartments, and a different data selection from the same study is used in each paper. For example, a national epidemiological study split across several papers that each focus on prevalence in just one city represents salami slicing, unless there are unique circumstances for each city—in which case the discussion and conclusion sections would be quite different.

Plagiarism is theft, but what about self-plagiarism? Can one steal from oneself? One aspect of self-plagiarism as noted by Roig is breach of copyright; so despite authorship of prior published work, authors must be cognizant of the rights of the copyright holder, which within journal publishing is usually a journal rather than an author. Consequently, authors cannot simply reuse, for example, an MRI scan of their own creation that has been published elsewhere unless permission is obtained and proper citation is made. This may seem unfair, especially as the author undertook the creative effort. It should be remembered, though, that journals and their publishers are not just protecting their own interests, but those of all authors. Without copyright control and the timeworn tradition for obtaining permission before republication of a table or figure, other authors would be liberty to appropriate work that was not theirs. Different journals operate a variety of copyright policies, and many provide fair use clauses (such as the display of content on a personal/academic website). Within the context of this article, it is advised, however, that authors wishing to use their own material in a later publication simply consult the permissions department of the publisher of the journal the content was previously published in. Once permission is granted, the correct approach to reusing content, and avoid accusations of self-plagiarism is to cite the source of original publication and include a short statement outlining that permission was granted from the publisher.

Verbatim repetition of text is probably the most common type of self-plagiarism journals will handle. It is also the most problematic. The recycling of select phrases often reflects the most economic way to describe a phenomenon or several methodological steps rather than an unethical action. The narrow confines of a study field also limit the opportunities for original expression. Furthermore, authors may become prone to repeating descriptions that worked well previously, especially if such prose could hardly be improved upon.

Repetition, to an extent, therefore, is legitimate and unavoidable—especially in certain sections of a
manuscript such as the methods. At the crux of the problem is the very definition of the “extent” of acceptable and unacceptable practice. To demarcate the boundaries of acceptability select journals have attempted to define self-plagiarism in percentages. *Gut*, for example, defined problematic overlap as anything more than a 10% reuse of previously published content.19 Others, such as *Headache*, have instituted policies that clearly note that self-plagiarism is a violation of ethical standards but chose instead to keep a definition less rigid, preferring to assess cases individually taking account of several issues rather than a statistical measure of overlap. As with most journals, *Headache* prefers to look for the “outlier from current and accepted norms as practiced by other authors and journals.”20

How Journals Might Assess a Case of Plagiarism.—Many journals when confronted with a case of plagiarism will likely consult the Committee on Publication Ethics flowcharts on a course of action.21 Their approach will depend on whether a manuscript has been accepted for publication or not. If a manuscript is still proceeding through peer review, a journal will contact an author with documentary evidence of plagiarism and ask for an explanation. If a satisfactory explanation is given (honest error, unclear instructions, inexperienced author), a journal may generously request revision/rephrasing. More likely it will just reject the paper. An unsatisfactory explanation, admission of guilt, or no response at all to a request may have more serious consequences. In addition to immediately rejecting a paper, the institution of the author under investigation or other authorities, such as the Office of Research Integrity, may be contacted.

Suspected plagiarism once an article is published requires a slightly different approach. Authors will again be invited to explain their behavior. If the response is unsatisfactory, in addition to a journal possibly notifying the research ethics body at the authors’ institution, the journal will almost certainly demand retraction of the article. Retraction does not simply mean an article is expunged. Instead, a statement is published prominently in the journal explaining the case and the adjudication of the journal and a retraction statement is very visibly appended to the online version of an article. The *New England Journal of Medicine* was forced to take such a step in 2007 after an author confessed the same image had been published twice in 2 other publications.22

Journals have to tread lightly when handling cases of plagiarism and self-plagiarism. As the World Association of Medical Editors notes, self-plagiarism is widespread and sometimes unintentional.23 A naive author, for example, may truly not have understood the complexities of copyright, believing their earlier composition of a figure or table is sufficient reason to allow them to do what they want with content. A journal should, if it performs its duties properly, investigate each case on its merits. It may do so within the context of its own publication policies. Unlike plagiarism, which all journals will react against forcefully, individual journals may vary in their interpretation of self-plagiarism. If a journal has a stated policy on self-plagiarism and an author in submitting to the journal attested to the originality of the content, journals may take a harder line, not least because the author has not been truthful in their attestation.

Unless a journal has draconian tendencies on the matter of recycling text, it likely will not consider a single sentence unethical—indeed should a significant overlap of words be uncovered, an investigating journal will move swiftly to the next stages, determining the intent behind the author(s) under investigation and the amount of original content, data analysis and results. Certainly within the biomedical field, an overlap of text may become a secondary issue in the face of egregious repurposing of data or the repetition of results. Short descriptive textual short-cuts, be they common within the field, or commonly used by an author, will not likely land an author in trouble, although that is not to say a journal will not at least investigate the issue.

How do journals suspect plagiarism or self-plagiarism? Peer review is still the mechanism most likely to detect a problem. Alert reviewers might recognize a table or figure. The compilation of a systematic review may also uncover cases of plagiarism.24 Recently, some journals have adopted plagiarism detection software. Although free variants exist, the most prominent versions used in publishing do come at a cost and are often reserved for either a random sampling or suspected cases. Armed with data, jour-
nals still must act cautiously in the event of false positive results. A great deal of human detective work is still required.

What Should Authors Do to Behave Ethically?—Focusing first on the reuse of text, authors need to be cognizant of any level of overlap and determine if the writing context has any bearing—for example, the avoidance of repetition within the methodology section of a paper is harder than in other manuscript components. Considerable duplication within the results section, alternatively, may imply redundant publication or the inappropriate division of material into the minimum publishable unit. Helpfully, the Office of Research Integrity suggests that authors “avoid reusing their own previously published text”—the correct approach therefore should always consist of quotation and citation. Additionally, authors should avoid using a manuscript “template” within which new data (likely from the same study) can be inserted.

On papers that involve collaboration with other authors, individual authors must be engaged fully with the authorship team and exercise some mutual oversight of collaborators. A defense that an author only contributed to one small part of the paper does not absolve that individual of blame—indeed it only then raises the question as to whether an author should even have been included on the paper.

QUESTIONS
- In Scenario 2, how might the author, intentionally or otherwise, have perpetrated an act of self-plagiarism?
- What evidence might the investigating journal need to see before making a judgment in this case?

REFERENCES


