

## ***Promoting Integrity Through “Instructions to Authors” – A Preliminary Analysis***

M.D. Scheetz, Division of Education and Integrity, Office of Research Integrity, DHHS, USA

***Key Words:*** *Journals, Instructions to authors, Content analysis, Research integrity*

Scholarly journals comprise a vital part of the research process and serve multiple functions for the scientific community. Journals provide a credible information medium for the research community. The journal is a “periodical that an identifiable intellectual community regards as a primary channel for communication of knowledge in its field and is one of the arbiters of the authenticity or legitimacy of that knowledge.”(1) Journals communicate knowledge, symbolize the currency by which researchers build careers and legitimize research for the community. The integrity of a journal contributes to its reputation as a reliable information medium by which the research community depends for the advancement of science and for the public good.

Although journals vary in quality, they all provide instructions to authors (IA). Instructions to authors published in scientific journals provide authors with the details required by a journal for manuscript preparation. They typically include information on the mechanics for manuscript preparation, such as bibliographic formats, paper size specifications, data presented in tables or illustrations, and the use of scientific terminology. These instructions are often provided in every journal issue, or are at least included in an annual issue.

The most frequently cited IA in the biomedical sciences is the “Uniform Requirements.” The instructions were first published in 1978 by a small group of editors referred to as the International Committee of Medical Journal Editors. The Uniform Requirements were developed to assist authors with manuscript preparations. It was 10 pages in length, and approximately 150 journals agreed to accept manuscripts prepared in accordance with the Uniform Requirements. There have been multiple revisions since the 1978 publication. The most recent revision was published in May 2000, is 30 pages in length, and endorsed by more than 500 journals.

While IA serve as the primary directive for authors when preparing a manuscript for publication, they also serve as a template for promoting research integrity. Good research practices, such as disclosing financial interests in the reported research, depositing data in a structured database, or requesting signed letters of permission for personal communications for reference purposes, are examples of information requests that promote research integrity. Good research practices are not considered part of the “mechanics” of manuscript preparation, such as paper size, or line formatting of a page, yet they represent efforts to advance the integrity of the research published by a journal.

Information published in the most recent version of the Uniform Requirements now includes topics that are not related to manuscript preparation, but are related to research integrity issues. They include:

- 1) Reporting guidelines for specific study design
- 2) Authorship
- 3) Ethics
- 4) Editorial freedom and integrity
- 5) Conflict of interest
- 6) Project-specific industry support for research
- 7) Correction, retractions, and “expressions of concern” about research findings
- 8) Confidentiality
- 9) Differences in analysis or interpretation, and
- 10) Differences in reported methods or results

These topics were not covered in 1978, and may be signaling a recognition of importance of research integrity in relation to publication practices.

In order to understand how journals relay information about research integrity to authors, a study was conducted to analyze the degree to which integrity issues are addressed in the IA. The purpose of the study was to determine what topics are covered in the IA other than manuscript preparation. Are there clusters of topics addressing particular themes? Does the IA address research integrity issues? The sample pool used for this preliminary analysis included 41 journals ORI contacted because articles they published required corrections or retractions due to findings of scientific misconduct.

### Methodology

Between 1992 and 1999, publications in 41 journals required literature corrections due to findings of scientific misconduct. Literature corrections were in the form of “retractions” and “corrections.” These 41 journals were selected for this study because each had to confront at least one research integrity issue—misconduct.

Of the 41 journals examined, 17 were basic science, 13 were clinical, and 11 published research of both clinical and basic research. (Appendix 1.) The latest versions of the IA were printed either from the journal itself or from the journal’s IA web site. To assure impartial analysis of integrity themes across journals, content analysis was adopted as the primary methodology for this study. Content analysis is used to make inferences by objectively and systematically identifying specific characteristics of publications as suggested by Weber (3). The IA was chosen as the recording unit for analysis. Each document was coded for content themes. A pilot study was conducted by two independent

coders to develop a coding sheet covering a variety of research integrity content themes. Inter-rater reliability was approximately 90 per cent. Coding disagreements were discussed by the coders and resolved. The final coding form used was based on the coders’ input (Appendix 2). One coder completed the coding for all 41 journals. A list of 32 content themes was developed based on a preliminary analysis of all 41 IA. Then, of each the IA were coded for content themes derived from the pilot study. Each subject category was counted in the IA and considered to be equal in value. Counting is based on the assumption that higher relative counts (proportions, percentages, or ranks) reflect interest with the category. Synonyms that are used frequently would be missed by a purely word-oriented approach to coding, but they are easily captured in a category-based system (4). The 32 content themes initially coded for the study were reduced to 10 “primary” categories and their indicators to reach conclusions about the most prevalent topics represented. The analysis is presented in concurrence with the research questions posed: What topics are covered in the IA other than manuscript preparation? Are there clusters of topics addressing particular themes? Do the instructions address research integrity issues? Is there representation of some topics more than others?

### Analysis

The most striking finding of this study was that the ten primary categories were found in only three (7 percent) of the IA’s. (Table 1.) Another key finding was that the majority (58 percent) of

Number of primary categories addressed	Number of instructions	%
0	4	10
1	1	2
2	3	7
3	6	15
4	10	24
5	0	0
6	1	2
7	6	15
8	5	12
9	2	5
10	3	7

Table 1. Number of primary categories addressed per instruction to authors.

the IA contained four or fewer of the primary categories. Four of the instructions did not address any of the primary categories. Twenty of the IA included one to four primary categories. These findings indicate that journals could promote research integrity by addressing more research integrity issues in the IA.

Because IA provide the framework authors rely upon for reporting research findings, this study illustrates that the journals provided minimal guidance in addressing research integrity topics. While this is a limited universe, the journals represent a wide range of well-respected biomedical and behavioral science titles and warrant further study.

The 10 primary categories, along with the frequency counts appear in Table 2. The findings of this table are discussed in the following section.

### Frequently cited topics

The top five primary categories in order of frequency are listed in Table 2 and include: copyright, authorship, reference practices, publishing practices, and financial disclosures. These five primary categories represent distinct clusters with associated indicators.

#### *Copyright*

The topic of "copyright" is not considered an integrity indicator. However, it was addressed with the greatest frequency.

Copyright was first established in eighteenth-century England as a way to eliminate the piracy of reproducing authors' work without proper credit. In this study, the topic of copyright appeared in 30 (73 percent) of the 41 instructions reviewed. It was represented the most of all the coded topics. The representation of copyright also highlights the weight attached to intellectual contribution.

	Total	%
<b>Copyright Practices (30)</b>		<b>73%</b>
Copyright	30	(73)
All authors sign copyright release	18	(44)
One author signs copyright	6	(15)
<b>Authorship: (28)</b>		<b>68%</b>
Authorship determination requirements	14	(34)
Approved by all authors	19	(46)
All authors sign off prior to submission	9	(22)
Journal subscribes to contributorship	1	(02)
Acknowledgment	21	(51)
<b>Reference practices (28)</b>		<b>68%</b>
Permission for personal communication	17	(41)
Submit "in press" or "submitted" ms	12	(29)
Accuracy of references	9	(22)
<b>Publishing practices (26)</b>		<b>63%</b>
Notification of Prior publication	18	(44)
Data deposited in structured database	14	(34)
Duplicate publishing (language)	4	(10)
Simultaneous submission	4	(10)
<b>Financial disclosures (24)</b>		<b>59%</b>
Identifying financial support for research	20	(49)
Financial disclosure of authors	17	(41)
<b>Peer Review (20)</b>		<b>49%</b>
Reviewer conflict of interest	15	(36)
Financial Disclosure	3	(07)
Referee suggestions made by author	13	(32)
Reviewer treat ms with confidentiality	8	(19)
<b>Human research_ (18)</b>		<b>44%</b>
Helsinki Declaration	15	(36)
IRB Review	13	(32)
Permission to use pictures	17	(41)
<b>Animal research (15)</b>		<b>36%</b>
Use and care of animal	14	(34)
<b>Correcting literature (6)</b>		<b>15%</b>
Retraction	6	(15)
Correction	5	(12)
All authors correct	0	
Some authors correct	1	(02)
Some authors retract	0	
<b>Research Misconduct (6)</b>		<b>15%</b>
Research Misconduct	6	(14)
Reporting to Authority	2	(05)

Table 2. Frequency of primary categories and their indicators.

The verbiage used to address copyright in IA sometimes varies but is routinely stated in the following manner, "It is a condition of publication in the Journal that authors assign copyright to \_\_\_\_." Another common wording as found on the web site for the journal Fertility and Sterility (website 1998) is, "prior to publishing the author(s) must sign and return the Copyright

Transfer form.” While the verbiage may vary, the weight attached to signing over a copyright is significant and widely upheld.

#### *Authorship*

The appearance of “authorship” as a primary category in the instructions was expected since authorship represents an intellectual achievement used by scholars to measure productivity. It often steers tenure and promotion decisions, thereby playing a pivotal role for career advancement. There are various criteria used to determine authorship since the definition is not universally endorsed. In this study “authorship” is represented in some capacity in 28 (68 percent) of the 41 journals examined. Twenty-eight journals referenced the “Uniform Requirements” to address some authorship issues. The criteria for authorship are stated in the Uniform Requirements:

Authorship credit should be based only on 1) substantial contributions to conception and design, or 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. Conditions 1, 2, and 3 must all be met. Acquisition of funding, the collection of data, or general supervision of the research group, by themselves, do not justify authorship (2).

Nine of the journals require authors to sign a document attesting to their role as an author when submitting their manuscripts. The sign-off form, often accompanying a copyright release, is one way co-authors can avoid authorship disputes or misunderstandings. The treatment of authorship is also reflected in the indicators related to authorship. These five indicators address more specific requirements associated with the authorship process. A less explicit approach to approval by authors is taken in 19 IA, and characterized by the IA in FEBS Letters. They state, (website 2000), “we assume that the manuscripts submitted to us have been approved by all authors.”

Authorship determination has gained increasing attention in recent years due to the varying opinions of what constitutes authorship, as well as how the order should be established. There is continued debate over the definition of authorship. In some academic circles for example, a geneticist might argue that the biologic samples they supply for a study warrant authorship, while others may contend that

authorship should only be granted to those who satisfy the requirements listed in the Uniform Requirements. Despite the fact that authorship criteria and the order of authorship on a manuscript are not uniformly endorsed, the authorship requirements promulgated by the Uniform Requirements do provide guidance on how this topic should be addressed.

On the other hand, the treatment of “acknowledgment” as an indicator identifies those who have made substantive contributions to the paper, but do not qualify as authors. Twenty-one of the instructions (51 percent) addressed acknowledgment in their IA. Typical verbiage to address this topic is provided by the American Journal of Psychiatry (website 2000, “Only those with key responsibility for the material in the article should be listed as authors; others contributing to the work should be recognized as an Acknowledgment.” While “acknowledgment” is not the same as authorship, those persons who are “acknowledged” may have served in a technical capacity, such as a manuscript editor, or provided technical or clinical services for the reported research.

The authorship indicator of “contributorship” is somewhat novel in the publishing arena. While this topic was only represented by one journal, it is worth noting because it is one of the latest proposed changes being discussed among journal editors. “Contributorship” entails specifically identifying, by title, the role each contributor played in the development of a paper. Roles such as statistician, clinician, patient recruiter, to name of few, would be identified. Advocates of contributorship contend that this approach of credentialing will reduce authorship abuses by requiring authors to list their roles on the paper (5, 6). Others contend that the listing of roles on a paper will not alleviate authorship abuses since some authorship roles overlap and the weights assigned to them are often indistinct. In addition, there are those difficulties associated with electronic indexing services, such as the National Library of Medicine, that only list authors’ names. The acceptance of contributorship remains unknown, although it does reflect a potential new research integrity concept.

#### *Reference Practices*

The topic of reference practices pertains to how the references are formatted and is associated with publishing mechanics. Such practices

however are not synonymous with reference accuracy. Many of the journals examined included the following statement, "Authors are responsible for the accuracy of the references." In this study, 28 (68 percent) of the instructions address reference practices.

The requirement of submitting a copy of a paper that is "in press" or "submitted" is a fairly new phenomenon, and again may have been requested in the IA because authors misrepresented the publication status of their supporting works. Studies conducted in various medical disciplines in the last 5 years have found that students applying for fellowships and residencies were misrepresenting the status of their publications while applying for fellowships or residencies (7, 8, 9).

Twelve (29 percent) of the IA made such a request for including copies of manuscripts listed as "in press." One example of common verbiage found in the IA was cited in the *Journal of Immunology* (website 1998) states, "Four copies of all cited manuscripts that have been designated as "in press" must accompany the submission." The need for supplying such evidence may stem from the lack of authors' credibility.

While it is unknown exactly why authors misrepresent their work, this occurrence has caught the attention of editors who appear to be exercising greater scrutiny with an author's manuscript status by requiring that original documents be included with the manuscript at the time of submission.

Permission for using personal communications is a relatively new request and has most likely evolved from either an honest mistake or abuse of citing persons without their knowledge or approval. Nevertheless, 17 (41 percent) of the instructions examined for this study required that a letter used as a supporting reference be included from the researcher being cited. The journal *Science* (website 1998) states that, "written permission from any author whose work is cited as a personal communication, unpublished work, or work in press but is not an author of your manuscript" is to be included with the manuscript submitted. This requirement represents an additional level of verification from a direct and primary source.

Reference accuracy was a unique finding in this study only because one would assume that authors do take responsibility for their references. However, addressing this topic in the IA could infer that enough errors have occurred to warrant

a declarative sentence on this issue. Nine (22 percent) of the 41 journals state that authors are responsible for reference accuracy. Common verbiage addressing this topic was similar to that found in the *EMBO Journal* (website 1998). It states simply, "authors are responsible for the accuracy of the references."

Publication support staff do not routinely verify the references authors use because editors often assume that the references are correct. The citing of reference accuracy as a topic again indicates that problems may have occurred with incomplete or inaccurate references. Sloppy or incomplete references diminish a journal's credibility since the information is deemed unreliable. And since references exist to support the thesis of a paper, they are considered critical support information and necessary to uphold the integrity of a publication.

#### *Publishing Practices*

There were specific requirements noted in the IA concerning publication practices. The *EMBO Journal* (website 1998) states, "submission of a paper implies that it reports unpublished work and that it is not under consideration for publication elsewhere." Eighteen (44 percent) of the IA reviewed required notification of prior publication. This was often required as a way to avoid duplicate publishing, or as a check for whether a publication was originally published in another language. Journals will often permit publishing an article in a second language as long as prior notification or permission is requested and the article is cited.

The indicator of depositing of data in a structured database, as noted with 14 (34 percent) of the instructions reviewed, is an emerging topic in the IA. With the advent of large databases such as the human genome database, journals are informing potential authors that publication acceptance is contingent upon authors agreeing to deposit their original data as a way to share their research with other scientists. The journal *Cell* (web site 1998) stated, "Publication of a research article in *Cell* is taken to imply that the authors are prepared to distribute freely to academic researchers for their own use any materials (e.g., cells, DNA, antibodies) used in the published experiments . . . nucleic acid and protein sequences as well as X-ray crystallographic coordinates should be deposited in the appropriate database." Requiring authors to submit their data into a structured database is

one pro-active way journals are promoting research integrity by facilitating verification and replication.

Four (10 percent) of the journals addressing “simultaneous submission” did so with the specific edict that it would not be tolerated. Simultaneous publication refers to the practice of submitting the same manuscript to more than one journal. Another phrase often linked with this indicator is the term “salami publishing,” the practice by which a study is fragmented into a variety of components in order to yield multiple publications. The International Journal of Radiation Oncology, Biology, Physics (IJROBP) (website 2000) states that “It is a condition of publication that manuscripts submitted to the IJROBP have not been published and will not be simultaneously submitted or published elsewhere.” While some authors might contend that their manuscripts should be circulated widely for publication consideration, publishers and the research community do not support this practice. Not only does it waste space, it also prevents other original research from being published, and inflates research findings. Journal editors may not consider citing this as a forbidden practice again, as it would be assumed that authors would “know better” not to engage in such a practice. However, the four instructions noted in this study have taken a specific position on this topic. Simultaneous submission wastes scarce editorial resources and unfairly burdens peer reviewers.

#### *Financial Disclosures*

Disclosing financial interests has become a growing concern in the research environment. In the past 10 years the increasing media attention surrounding high visibility experimental treatments has prompted funding agencies and journals to request that authors disclose financial ties they may have to private sources, such as with the drug industry. The disclosure is an important policy position to take to avoid a real or “perceived” conflict of interest. Many journals have a multi-purpose form that addresses authorship responsibility, financial disclosure, and copyright transfer all on one form. A common phrase used by many of the journals was found with the journal *Molecular Pharmacology* (website 1998) that states: “I certify that any affiliations with or involvement (either competitive or amiable) in any organization or entity with a direct financial

interest in the subject matter or materials discussed in the manuscript (e.g., employment, consultancies, stock ownership, honoraria, expert testimony, etc.) are noted below. All financial research or project support is identified in an acknowledgment in the manuscript.”

The representation of financial disclosures in 24 (59 percent) of the instructions reviewed recognize its importance to research integrity. For journals, disclosing financial ties may be the best method of alleviating any question of an author’s or publisher’s integrity. In more recent years, research findings have been reported to show that financial support for research sometimes influences the evaluation of a drug or device (10). Because editors are in the business of promoting the integrity and credibility of their journals, any distraction from this goal could tarnish a journal’s reputation. Readers expect journals to present credible information with integrity, and it is therefore in the journals best interest to have a transparent policy disclosing financial associations.

#### **Remaining Primary Topics**

The last five primary categories addressed warrant discussion, while it should be noted that they were addressed in less than 50 percent of the instructions reviewed.

##### *Peer Review*

Peer review is considered by many to be the most critical process associated with the editorial process because it provides the framework by which original work is accessed. A peer reviewer is expected to produce a review that is objective, thorough, and timely, so that the editor may execute a decision as quickly as possible. Peer review is normally voluntary and protected via confidentiality provided by the editor for the purpose of promoting an objective review.

In this study, 20 (49 percent) of the instructions address peer review in some format. The largest representation pertained to the reviewer conflict of interest (36 percent). It could be argued that “peer review” represents an inherent conflict among those researching similar topics. The temptation could be great to steal research ideas, methods, or analysis as a way to gain a competitive edge. Only 15 of the 41 journals specifically discuss reviewers recusing themselves from reviewing should it pose too great a conflict due to competing research interests. The *Journal of Biological Chemistry*

states that, "Every manuscript is treated by the reviewers as a privileged communication, and they exclude themselves from review of any manuscript that might involve a conflict of interest or the appearance thereof."

It is worth mentioning that 13 (32 percent) of the instructions specifically mention that authors are permitted to submit names of reviewers. Authors may know of specific reviewers who are exceptionally well qualified to serve as a reviewer. The journal *Diabetes* (website 1998) states, "authors are welcome to suggest the names of individuals they consider qualified to serve as reviewers." This provision allows authors to recommend reviewers who they believe will give them an objective and fair review.

#### *Human Subject Research*

Human subject research plays an essential role for improving quality of life. Those persons who volunteer for research studies are in fact contributing to the development of research that hopefully benefits a wide range of patients. Studies are funded both by public and private sources. But as human subject research has increased so has the need to protect these subjects. Eighteen (44 percent) of the IA addressed human subject research issues in some manner. The *Journal of Clinical Investigation* (JCI, website 1998) states, "All human and animal studies must have been approved by the authors' Institutional Review Board. All patients referred to in human studies should not be identified by number, or by name. All clinical investigation must have been conducted according to the Declaration of Helsinki principles." Fifteen journals addressed the Helsinki Declaration, 17 instructions state the requirement for obtaining permission to use identifiable pictures of subjects and 13 require review by Institutional Review Boards.

#### *Animal Research*

Animal research plays an important role in basic science research. It often provides the groundwork for research forwarded into clinical research. Fourteen (34 percent) of the journals address the treatment of animals and they represented an even mix of basic and clinical science journals. The *IJROBP* (website, 2000) states "When reporting experiments on animals, the author must indicate whether the institution's

or a national research council's guide for, or any national law on, the care and use of laboratory animals was followed." The verbiage used by the other thirteen journals echoed this position.

#### *Correcting the Literature*

In this study, correcting the literature was addressed in six (15 percent) of the instructions examined. The most common phraseology presented was similar to the statement made in the JJCI (website 1998):

. . . scientific fraud are rare events that nevertheless have a very serious impact on the integrity of the scientific community . . . If the Editorial Board uncovers possible evidence of such problems it will first contact the corresponding author in complete confidence, to allow adequate clarification of the situation. If the results of such interactions are not satisfactory, the Board will contact the appropriate official(s) in the institution(s) from which the manuscript originated. It is then left to the institution(s) in question to pursue the matter appropriately. Depending on the circumstances, the JCI may also opt to publish errata, corrigenda, or retractions.

Correcting the literature is important for a variety of reasons. First, it addresses unreliable information that is part of the public record. Second, once corrected, it enables the researcher to identify and use correct information thereby saving time and resources. Third, it enhances a journal's reputation by taking a pro-active role in publishing accurate information for its readership. How many authors should request corrections is addressed in only one journal. The low number of instructions addressing this topic was a surprising finding given the importance journals place on seeking to uphold integrity and gain a competitive edge in the publishing arena.

Retracting literature that is unreliable is another form of correcting the literature. One of the most important methods of correcting the literature, "retractions" was found in only six of the instructions examined in this study. A retraction indicates that the identified data should not be considered reliable. The Uniform Requirements suggest that retraction should "appear on a numbered page in a prominent section of the journal, be listed in the contents page, and include in its heading the title of the original article. It should not simply be a letter to the editor."<sup>(2)</sup> While retractions are cited in a journal, they are not always located in prominent positions for the reader. Publishing retractions

helps journals maintain and promote their reputation for accuracy and intellectual integrity.

#### *Research Misconduct*

A report on the responsible conduct of research issued by the Institute of Medicine (IOM) in 1989 recommended that “scientific journals should develop policies to promote responsible authorship practices, including procedures for responding to allegations or indications of misconduct in published research or reports submitted for publication” (11). The two journals in this study that did address this theme were quite specific in how they would handle the situation. The *Journal of Immunology* (webstie 1998) states that, “In the case of scientific misconduct, i.e., suspected fabrication or falsification of data, double publication, or plagiarism, the Editor-in-Chief will attempt to clarify the matter with each of the authors. Should that fail to resolve the situation satisfactorily, the Editor-in-Chief will contact the institution of the corresponding author. The institution should then make an inquiry and report back to the Editor-in-Chief. Until the matter is clarified, no papers by any authors on the disputed manuscript will be considered for publication. If scientific misconduct is confirmed by institutional review, the Editor-in-Chief will report this to the Publications Committee. Appropriate action will be decided by the Publications Committee in consultation with the Council of the American Association of Immunology.”

The second journal that addresses contacting appropriate authorities is the *Journal of Clinical Investigation*. Their handling of this matter is addressed in the literature correction section previously cited.

While the IOM’s 1989 recommendation that journal editors should develop policies to promote responsible authorship practices, including procedures for responding to allegations or indications of misconduct in published research or reports submitted for publication was made more than 10 years ago, the IAs analyzed for this study illustrate that this recommendation has been barely endorsed. Only six (15 percent) of the instructions reviewed mention research misconduct. This is a curious finding given that research misconduct is not a new phenomenon, but yet the paucity of its appearance may be linked to the journals wanting to avoid a rather contentious subject.

#### **Future Research**

The IA represent one aspect of the research cycle. As the road map for publishing, they serve a critical role. There is a wide range of topics associated with manuscript submission and publication that have yet to be explored. Issues associated with how to handle a manuscript that is suspect for scientific misconduct, how to effectively correct the literature, and how to best educate users of bibliographic cites so that they avoid citing information that is not credible due to a finding of scientific misconduct, are but a few of the many research topics yet to be addressed.

The ORI has taken a step in helping to address some of these research integrity issues through its publication “Managing Allegations of Scientific Misconduct: A Guidance Document for Editors” (see ORI website <http://ori.dhhs.gov/html/publications/guidelines.asp>). ORI also encourages researchers to study this topic empirically as one of the responsible conduct of research topics, publication practices, and responsible authorship. There is a dearth of empirical data on publication practices and understanding, and examining the framework of IA is an area in need of further exploration.

#### **Conclusions**

The IA examined for this study illustrated that there is a lack of uniformity and frequency of primary topic categories and integrity measures. The research integrity variables in the instructions to authors identified and measured for this study represent a limited universe. While the IA provides information on preparation mechanics, this study focused on examining the instructions to authors in those journals that published articles for which corrections or retractions were requested due to a finding of scientific misconduct. In sum, majority of the issues were minimally addressed in the IA examined for this study.

Editors and publishers charged with critiquing and disseminating the research are in a unique position to help cultivate a scientific culture that promotes research integrity through the instructions they provide authors. By default, editors have a responsibility to enhance the research cycle by educating their readers about research integrity. Such efforts not only assist the author, but may prove to be effective in promoting the journal’s professional integrity.

The results of this content analysis study may

provide editors with an understanding of what information should be included in the IA for manuscript preparation and provide clearer provisions for which authors could learn and contribute to a stronger culture of research integrity.

## **Bibliography**

1. LaFollette MC. *Stealing into Print: Fraud, Plagiarism, and Misconduct in Scientific Publishing*. Berkeley, CA: University of California Press. 1992, p. 69.
2. Uniform requirements for manuscripts submitted to biomedical journals. International Committee of Medical Journal Editors. <http://www.icmje.org/>. October, 2001.
3. Weber UP. *Basic Content Analysis*. Beverly Hills, CA: Sage Publications, 1985:56.
4. Ibid.
5. Rennie D. Who did what? Authorship and contribution in 2001. *Muscle Nerve*. 2001 Oct 24(10): 1274-7.
6. Yank V, Rennie D. Disclosure of researcher contributions: a study of original research articles in *The Lancet*. *Ann Intern Med*. 1999 Apr 20; 130(8):661-70.
7. Sekas G, Houston WR. Misrepresentation of academic accomplishments by applicants for gastroenterology fellowships. *Ann Intern Med*. 1995; 123(1): 38-41.
8. Bilge A, Superman UP, Robertson WO. Misrepresentation of authorship by applicants to pediatrics training programs. *Acad. Med*. 1998 May; 83(5):532-3.
9. Misrepresentation of publication by applicants for radiology fellowship: is it a problem? *Am J. Roentgenol*. 1998 Mar; 170(3): 577-81.
10. Yaphe J, Elman R, Knishkowsky B, Herman J. The association between funding by commercial interests and study outcome in randomized controlled drug trials. *Fam. Pract*. 2001 Dec;18(6):565-8.
11. *The Responsible Conduct of Research in the Health Sciences*. Institute of Medicine. Washington, DC: National Academy Press, 1989, p. 5.

## APPENDIX 1

### **Journals notified to correct literature due to PHS findings of scientific misconduct**

1. Am. Journal of Psychiatry
2. Archives of General Psychiatry
3. Biochemica et Biophysica Acta (BBA)
4. Biochemical and Biophysical Research Communications
5. Biological Psychiatry
6. Blood
7. Brain Research
8. Cell
9. Chemical Senses
10. Comparative Biochemistry and Physiology
11. Cytometry
12. Diabetes
13. EMBO Journal
14. FEBS Letters
15. Fertility and Sterility
16. GLIA
17. Genes, Chromosomes and Cancer
18. Genomics
19. Immunology Letters
20. International Journal of Radiation Oncology, Biology, Physics
21. Journal of Biological Chemistry
22. Journal of Clinical Immunology
23. Journal of Speech & Hearing Research
24. Journal of Clinical Investigations
25. Journal of Immunology
26. Journal of Trauma
27. Journal of Molecular Biology
28. Journal of Pharmacology and Experimental Therapeutics
29. Laboratory Investigations
30. Lancet
31. Molecular Pharmacology
32. Molecular and Cellular Biology
33. Nature
34. Neurology
35. Neuron
36. New England Journal of Medicine
37. Obstetrics and Gynecology
38. Ontogeny
39. Proceedings of the National Academy Sciences USA
40. Proceedings Royal Society of London
41. Science

## APPENDIX 2

### Journal Policy Coding Scheme

Name of Journal: \_\_\_\_\_

Check those issues which are addressed:

Scientific Misconduct \_\_\_\_\_

Reporting to appropriate authority for review \_\_\_\_\_

Journal states that it's not legally responsible for errors or omissions made \_\_\_\_\_

Embargo against manuscript that violates policy \_\_\_\_\_

Authorship determination/requirements \_\_\_\_\_

All authors responsible for content \_\_\_\_\_

Approved by all authors \_\_\_\_\_

All authors sign off on paper prior to submission \_\_\_\_\_

Principal author responsible for content \_\_\_\_\_

Journal subscribes to contributorship \_\_\_\_\_

Approved by institution \_\_\_\_\_

Approval of Lab Authority \_\_\_\_\_

IRB Review \_\_\_\_\_

Use and Care of animals \_\_\_\_\_

Helsinki Declaration \_\_\_\_\_

Informed Consent \_\_\_\_\_

Permission to Use Pictures of Patients \_\_\_\_\_

Acknowledgment \_\_\_\_\_

Notification of prior publication \_\_\_\_\_

Citations - only published or "in press" \_\_\_\_\_

Written permission for use of personal communication \_\_\_\_\_

Requires submission of "in press" or "submitted" manuscripts \_\_\_\_\_

Accuracy of references \_\_\_\_\_

Retraction \_\_\_\_\_

All authors retract \_\_\_\_\_

Some authors retract \_\_\_\_\_

Correction \_\_\_\_\_

All authors correct \_\_\_\_\_

Some authors correct \_\_\_\_\_

Wording of retraction cited \_\_\_\_\_

Wording of correction cited \_\_\_\_\_

Data deposit in structured database \_\_\_\_\_

Release data to colleagues upon publication \_\_\_\_\_

Copyright \_\_\_\_\_

Do all authors sign copyright release \_\_\_\_\_

Does one author sign for copyright \_\_\_\_\_

Identifying financial support for research \_\_\_\_\_

Referee suggestions accepted by author \_\_\_\_\_

Financial disclosure (personal) \_\_\_\_\_

Reviewer's financial Disclosure \_\_\_\_\_

Reviewer's treatment with confidentiality \_\_\_\_\_

Conflict of interest (research) \_\_\_\_\_

Duplicate publishing (another language) \_\_\_\_\_

Simultaneous publication \_\_\_\_\_

