



Qatar Research, Development and Innovation [QRDI] Council

[QRDI Policy on Research Misconduct]

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Record of Amendments

Ver. No	Date of Publication	Description of Change
00	November 2014	Initial Release
01	April 2023	<ol style="list-style-type: none">1. Clarification of applicability of the policy to partner institutions in Qatar and overseas.2. Simplification of the policy presentation.3. Explicit linking of the policy to the QRDI Grants terms and conditions and supporting guidelines.

Purpose

The policy establishes the scope of QRDI's interest in the accuracy and reliability of the research record and the processes involved in its development. The policy consists of a definition of research misconduct and sets out QRDI's expectations with regards to institutions' response to research misconduct and the need to notify QRDI about any such allegation and the institutional response.

Institutions receiving QRDI funding are expected to develop and maintain research misconduct policies following the definition and basic guidelines described in this Policy.

Scope

This policy addresses fabrication, falsification and plagiarism. It does not supersede institutional policies or procedures for addressing other forms of misconduct, such as the unethical treatment of human research subjects or mistreatment of laboratory animals used in research. This policy does not limit the authority of research institutions to promulgate additional research misconduct policies or guidelines or more specific ethical guidance. In addition, should the behavior associated with research misconduct also trigger the applicability of other laws, this policy is not intended to limit the government, other agencies or research institutions from pursuing these matters under separate authorities.

This policy applies to Qatar Research Development and Innovation Council (QRDI) funded research and to research proposals submitted to QRDI for funding.

A commitment to good research conduct lies at the heart of an effective research system and QRDI expects all individuals involved in research activities it supports, including research students, researchers, research support staff, research managers and administrators, to abide by the principles set out in this policy.

Research misconduct wastes scarce funds and undermines trust at a time when scientific advances are needed to address many societal challenges from economic dynamism to public health and environmental protection.

Effective Date:

The provisions of this Policy shall be effective from the date of publication.

Terms and Abbreviations

Term	Definition
Applicant Institution / Submitting Institution	The applicant institution is the one organization that will be legally and financially responsible for the conduct of activities supported by QRDI through all its funding or financing mechanisms.
Confidentiality	Means preserving authorised restrictions on information access and disclosure, including means for protecting personal privacy and proprietary information.
Authorized Official	is the individual assigned by QRDI Council's Secretary General to review COI cases, declarations, waiver requests and recommendations received from QRDI Council's Integrity Committee and is authorized to take the appropriate decision accordingly.
Institution	Means any domestic or foreign, public or private, entity or organization that is applying for, or that receives QRDI financial support.
Investigator:	Means the LPI, PI, investigators, collaborators, and any other person who is responsible for the design, conduct, or reporting of research funded by QRDI, or of a research project proposed for such funding.
Need to Know	Means the necessity for access to or knowledge of or possession of specific information required to carry out official duties.
Research	Research: Means a systematic investigation, including research development, testing and evaluation, designed to develop or contribute to general knowledge. Activities which meet this definition constitute research for purposes

Term	Definition
	of this policy, whether or not they are conducted or supported under a program which is considered research for other purposes.
Research Record	Means the record of data or results that embodies the facts resulting from scientific inquiry, and includes, but is not limited to, research proposals, laboratory records, both physical and electronic, progress reports, abstracts, theses, oral presentations, internal reports, and journal articles. Researchers should keep clear, accurate records of all research in ways that will allow verification and replication of their work by others.
The QRDI Integrity Committee	means the QRDI Committee that will administer this Policy.

**All terms and definitions can be found in the QRDI Grants Terms and Conditions*

Policy

1. Research Misconduct

QRDI defines research misconduct as fabrication, falsification, or plagiarism¹ in proposing, performing, or reviewing research, or in reporting research results.

Fabrication is the creation of false data or results or other aspects of research including documentation and consents, and recording or reporting them.

Falsification is manipulating research materials, equipment, or processes, or changing or omitting data or results such that the research is not accurately represented in the research record.

The research record is the record of data or results that embodies the facts resulting from scientific inquiry, and includes, but is not limited to, research proposals, laboratory records,

¹ <http://www.singaporestatement.org/statement.html>; and <http://ori.hhs.gov/federal-research-misconduct-policy>

both physical and electronic, progress reports, abstracts, theses, oral presentations, internal reports, and journal articles.

Omission of data is considered falsification when it misleads the reader about the results of the research. Misrepresentation of a researcher's qualifications or ability to perform the research in QRDI applications for funding or submissions related to a funded project may constitute falsification or fabrication in proposing research.

Plagiarism includes both the theft or misappropriation of intellectual property and the substantial unattributed textual copying of another's work. It does not include authorship or credit disputes.

The theft or misappropriation of intellectual property includes the unauthorised use of ideas or unique methods obtained by a privileged communication, such as an application for funding (during the review process) or manuscript review.

Substantial unattributed textual copying of another's work means the unattributed verbatim or nearly verbatim copying of sentences and paragraphs which materially mislead the ordinary reader regarding the contributions of the author.

QRDI enforces a “zero tolerance to plagiarism” policy.

QRDI generally does not pursue the strictly limited use of identical or nearly-identical phrases which describe a commonly-used methodology when QRDI does not consider such use as substantially misleading to the reader or of great significance. [See Appendix A, Guide to Avoid Plagiarism]

2. Findings of Research Misconduct

A finding of research misconduct requires that:

- There be a significant departure from accepted practices of the relevant research community; and
- The misconduct be committed intentionally, or knowingly, or recklessly; and
- The allegation be proven by a preponderance of the evidence.

3. Responsibilities of QRDI and Institutions Participating in Research

QRDI and the applicant institutions are partners who share responsibility for the research process and bear primary responsibility for prevention and detection of research misconduct.

The Institution is responsible for the inquiry, investigation, and adjudication of research misconduct alleged to have occurred in association with their own institution. The home institution of a training award is responsible for the inquiry, investigation, and adjudication of research misconduct alleged to have occurred in association with its students/postdoctoral students acting as employees supported by QRDl funds.

For the purpose of this Policy the term institution is defined to include all organizations using QRDl funds for research and development awards.

4. QRDl Referral to Research Institution

In most cases, QRDl will rely on the researcher's home institution to make the initial response to allegations of research misconduct. QRDl will refer allegations of research misconduct made directly to QRDl to the appropriate institution.

5. Phases of the Response to an Allegation of Research Misconduct

A response to an allegation of research misconduct will usually consist of several phases, including:

- An inquiry--the assessment of whether the allegation has substance and if an investigation is warranted;
- An investigation--the formal development of a factual record, and the examination of that record leading to dismissal of the case or to a recommendation for a finding of research misconduct or other appropriate remedies;
- Adjudication--during which recommendations are reviewed and appropriate corrective actions determined.

6. Separation of Phases

Adjudication is separated from inquiry and investigation. Likewise, appeals are separated from inquiry and investigation.

7. QRDl Follow-up to Institutional Action

QRDl Integrity Committee (the Committee), after reviewing the record of the investigation, and the institutional authorized official's recommendations, including any corrective actions taken by the institution, may request different investigative steps if necessary.

The Committee may decide to conduct its own investigation and involve external independent experts, require the institution to submit copies of the research record and of

all the relevant documents to the Committee if the Committee, after requesting the institution to take the appropriate investigative steps:

- Still considers that substantive misconduct or non-compliance issues were not addressed, or were inadequately addressed, considering also how serious the alleged misconduct is; OR
- The institution did not follow the applicable procedure, e.g., as stipulated in its own Research Misconduct Policy.

Upon completion of its review the Committee will make appropriate recommendations to the QRDI Authorized Official to take any administrative actions in accordance with QRDI policies. When the QRDI Authorized Official has made a final determination, the QRDI Research Integrity Officer (RIO) will notify the institution regarding its disposition of the case.

QRDI determinations regarding research misconduct findings and its administrative actions can be appealed pursuant to the QRDI applicable appeal procedures.

8. Institutional Notification of QRDI

Institutions receiving QRDI funding will notify QRDI of an allegation of research misconduct if (1) the allegation involves QRDI funded research (or an application for QRDI funding) and meets QRDI definition of research misconduct given above; and (2) if the institution inquiry into the allegation determines there is sufficient evidence to proceed to an investigation.

When an investigation is complete, the institution will forward to the Committee a copy of the evidentiary record, the investigative report, the recommendations made to the institution's authorized official, and the subject written response to the recommendations (if any).

When the institution completes the deciding phase, it will forward the authorized official's decision and notify the Committee of any corrective actions taken or planned.

9. Other Reasons to Notify QRDI

At any time during an inquiry or investigation, the institution will immediately notify QRDI if public health or safety is at risk; if QRDI resources or interests are threatened; if research activities should be suspended; if there is reasonable indication of possible violations of law; if the institution believes the inquiry or investigation may be made public prematurely

so that appropriate steps can be taken to safeguard evidence and protect the rights of those involved; or if the research community or public should be informed.

10.Fair and Timely Procedures

Fair and timely procedures are designed to provide safeguards for subjects of allegations as well as for informants and include the following:

Safeguards for Informants: Safeguards for informants give individuals the confidence that they can bring allegations of research misconduct made in good faith to the attention of appropriate authorities within their institutions; or directly to QRDI; or serve as informants to an inquiry or an investigation without suffering retribution. QRDI expects that all institutions receiving QRDI funds shall have appropriate policies in place to ensure protection against retaliation for informants who make allegations in good faith; fair and objective procedures for the examination and resolution of allegations of research misconduct; and diligence in protecting the positions and reputations of those persons who make allegations of research misconduct in good faith.

Safeguards for Subjects of Allegations: QRDI expects that all institutions receiving QRDI funds shall have appropriate policies in place to ensure that the rights of an individual against whom an allegation of research misconduct is filed should be protected and should not be the basis for other disciplinary or adverse action absent of other compelling reasons. Other safeguards include timely written notification for respondents regarding any substantive allegations made against them; a description of all such allegations; reasonable access to the data and other evidence supporting the allegations; and the opportunity to respond to allegations, the supporting evidence and the proposed findings of research misconduct (if any).

Objectivity and Expertise: The individuals selected by the institutions to review allegations and conduct investigations should have appropriate expertise; and have no unresolved conflicts of interest to ensure fairness throughout all phases of the process.

Timeliness: The time limits for the conduct of the inquiry, investigation, adjudication, and appeal phases (if any) should be reasonable, with allowances for extensions where appropriate.

Confidentiality during the Inquiry, Investigation, and Decision-Making Processes: To the extent possible consistent with a fair and thorough investigation, knowledge about the identity of subjects and informants is limited to those who need to know.

11.QRDI Administrative Actions

Seriousness of the Misconduct: In deciding what administrative actions are appropriate, the Committee will consider the seriousness of the misconduct, including, but not limited to, the degree to which the misconduct was knowing, intentional, or reckless; was an isolated event or part of a pattern; or had significant impact on the research record, research subjects, other researchers, institutions, or the public welfare. The Committee will make recommendations regarding the appropriate administrative actions to the QRDI Authorized Official.

Administrative Actions: Administrative actions to be taken by the QRDI Authorized Official include, but are not limited to, appropriate steps to correct the research record; letters of reprimand; the imposition of special certification or assurance requirements to ensure compliance with applicable regulations or terms of an award; termination of an active award; debarment or suspension (different from the suspension of financial assistance as a post-award remedy).

Institutional Appeals against QRDI Administrative Actions The institution has 60 calendar days from the day the institution receives a QRDI administrative action determination notice, to appeal (in writing) QRDI's decision.

The subject of a QRDI administrative action cannot appeal QRDI decision back to his/her institution. Institutional misconduct findings cannot be appealed at QRDI. Subjects of allegations can appeal the findings of the misconduct investigation at the institution where the investigation was conducted, according with the institutional policies.

Enquiries

For any enquiries on this policy, please submit a ticket through the QRDI Help Centre at <https://support.qrdi.org.qa/>.

References

- QRDI Grants Terms and Conditions

Appendices

Appendix A

Guide to Avoid Plagiarism

Plagiarism

Plagiarism includes both the theft or misappropriation of intellectual property and the substantial unattributed textual copying of another's work. It does not include authorship or credit disputes.

The theft or misappropriation of intellectual property includes the unauthorised use of ideas or unique methods obtained by a privileged communication, such as a grant or manuscript review.

Substantial unattributed textual copying of another's work means the unattributed verbatim or nearly verbatim copying of sentences and paragraphs which materially mislead the ordinary reader regarding the contributions of the author.

Many allegations of plagiarism involve disputes among former collaborators who participated jointly in the development or conduct of a research project, but who subsequently went their separate ways and made independent use of the jointly developed concepts, methods, descriptive language, or other product of the joint effort. The ownership of the intellectual property in many such situations is seldom clear, and the collaborative history among the scientists often supports a presumption of implied consent to use the products of the collaboration by any of the former collaborators.

For this reason, many such disputes are considered to be authorship or credit disputes rather than plagiarism. Such disputes are referred to institutions for resolution.

Appropriating an idea (e.g., an explanation, a theory, a conclusion, a hypothesis, a metaphor) in whole or in part, or with superficial modifications without giving credit to its originator:

In the sciences, as in most other scholarly endeavors, ethical writing demands that ideas, data, and conclusions that are borrowed from others and used as the foundation of one's own contributions to the literature, must be properly acknowledged. The specific manner

in which an acknowledgement is made varies from discipline to discipline. However, source attribution typically takes the form of either a footnote or a reference citation.

Guideline 1: An ethical writer ALWAYS acknowledges the contributions of others and the source of his/her ideas.

Just about every scholarly or scientific paper contains several footnotes or reference notes documenting the source of the facts, ideas, or evidence that is reported in support of arguments or hypotheses. In some cases, as in those papers that review the literature in a specific area of research, the reference section listing the sources consulted can be quite extensive, sometimes taking up more than a third of the published article (see, for example, Logan, Walker, Cole, & Leukefeld,² 2000).

Most often, the contributions we rely upon come from the published work or personal observations of other scientists or scholars. On occasion, however, we may derive an important insight about a phenomenon or process that we are studying, through a casual interaction with an individual not necessarily connected with scholarly or scientific work. Even in such cases, we still have a moral obligation to credit the source of our ideas.

A good illustrative example of the latter point was reported by Alan Gilchrist in a 1979³ *Scientific American* article on color perception. In a section of the article, which describes the perception of rooms uniformly painted in one color, Gilchrist states: “We now have a promising lead to how the visual system determines the shade of gray in these rooms, although we do not yet have a complete explanation. (John Robinson helped me develop this lead.)” (p.122; Gilchrist, 1979⁴). A reader of the scientific literature might assume that Mr. Robinson is another scientist working in the field of visual perception, or perhaps an academic colleague or an advanced graduate student of Gilchrist’s. The fact is that John Robinson was a local plumber and an acquaintance of Gilchrist in the town where the author spent his summers. During a casual discussion, Robinson’s insights into the problem that Gilchrist had been working on were sufficiently important to the development of his theory of lightness perception that Gilchrist felt ethically obligated to credit Robinson’s contribution.

² Logan, T. K., Walker, R., Cole, J., & Leukefeld, C. (2002). Victimization and substance abuse among women: Contributing factors, interventions, and implications. *Review of General Psychology*, 6, 325-397

³ Gilchrist, A. (1979). The perception of surface blacks and whites. *Scientific American*, 24, 88-97

⁴ Gilchrist, A. (1979). The perception of surface blacks and whites. *Scientific American*, 24, 88-97

Guideline 2: Any verbatim text taken from another author must be enclosed in quotation marks.

* Copying a portion of text from another source without giving credit to its author and without enclosing the borrowed text in quotation marks.

When it comes to using others' word-for-word (verbatim) text in our writing the universally accepted rule is to enclose that information in quotations and to indicate the specific source of that text. When quoting text from others you must provide a reference citation and the page number indicating where the text comes from. Although using direct quotes is not a very common occurrence in the biomedical literature, there may be occasions when it might be warranted. The material quoted earlier from Gilchrist (1979) serves as a good example of when to use quotations.

Guideline 3: We must always acknowledge every source that we use in our writing; whether we paraphrase it, summarize it, or enclose it in quotations.

Although the evidence indicates that most authors, including college students, are aware of rules regarding the use of quotation marks, plagiarism of text is probably the most common type of plagiarism. However, plagiarism of text can occur in a variety of forms. The following review will allow the reader to become familiar with the various subtle forms of plagiarism of text:

Copying a portion of text from one or more sources, inserting and/or deleting some of the words, or substituting some words with synonyms, but never giving credit to its author nor enclosing the verbatim material in quotation marks.

The above form of plagiarism is relatively well known and has been given names, such as patchwriting (Howard, 1999⁵) and paraphragiarism (Levin & Marshall, 1993⁶). Iverson, et al. (1998⁷) in the American Medical Association's Manual of Style identify this type of unethical writing practice as mosaic plagiarism and they define it as follows:

⁵ Howard, R. M. (1999). The new abolitionism comes to plagiarism. In L. Buranen, L. & M. Roy (Eds.) Perspectives on plagiarism and intellectual property in a postmodern world. N.Y.: State University of New York.

⁶ Levin, J. R. & Marshall, H. (1993). Publishing in the Journal of Educational Psychology: Reflections at midstream (Editorial). Journal of Educational Psychology, 85, 3-6.

⁷ Iverson, C, et al. (1998). American Medical Association Manual of Style. A Guide for Authors and Editors, 9th ed. Baltimore: Williams and Wilkins.

"Mosaic: Borrowing the ideas and opinions from an original source and a few verbatim words or phrases without crediting the original author. In this case, the plagiarist intertwines his or her own ideas and opinions with those of the original author, creating a 'confused plagiarized mass'" (p. 104).

Another, more blatant form which may also constitute plagiarism of ideas occurs when an author takes a portion of text from another source, thoroughly paraphrases it, but never gives credit to its author.

Guideline 4: When we summarise, we condense, in our own words, a substantial amount of material into a short paragraph or perhaps even into a sentence.

* Taking portions of text from one or more sources, crediting the author/s, but only changing one or two words or simply rearranging the order, voice (i.e., active vs. passive) and/or tense of the sentences.

Inappropriate paraphrasing is perhaps the most common form of plagiarism and, at the same time, the most controversial. This is because the criteria for what constitutes proper paraphrasing differs

between individuals even within members of the same discipline. We will discuss these issues shortly, but first let's consider the process of paraphrasing.

Paraphrasing and Summarising

Scholarly writing, including scientific writing, often involves the paraphrasing and summarizing of others' work. For example, in the introduction of a traditional scientific paper it is customary to provide a brief and concise review of the pertinent literature. Such a review is accomplished by the cogent synthesis of relevant theoretical and empirical studies and the task typically calls for the summarizing of large amounts of information.

Guideline 5: Whether we are paraphrasing or summarizing we must always identify the source of the information.

At other times, and for a variety of reasons, we may wish to restate in detail and in our own words a certain portion of another author's writing. In this case, we must rely on the process of paraphrasing. Unlike a summary, which results in a substantially shorter

textual product, a paraphrase usually results in writing of equivalent textual length as the original, but, of course, with different words and, ideally, different sentence structure. Whether paraphrasing or summarizing others' work, we must always provide proper credit. In fact, when paraphrasing in the humanities, one may thoroughly modify another author's text and provide the proper citation. However, if the original sentence structure is preserved in the paraphrase, some will classify such writing as an instance of plagiarism.

Guideline 6: When paraphrasing and/or summarizing others' work we must reproduce the exact meaning of the other author's ideas or facts using our words and sentence structure.

Although virtually all professional and student writing guides, including those in the sciences, provide specific instructions on the proper use of quotes, references, etc., many fail to offer specific details on proper paraphrasing. With some exceptions, writing guides that provide instructions for proper paraphrasing and avoiding plagiarism tend to subscribe to a 'conservative' approach to paraphrasing. That is, these guides often suggest that when paraphrasing, an author must substantially modify the original material. Consider the following examples of paraphrasing guidelines:

"Don't plagiarize. Express your own thoughts in your own words.... Note, too, that simply changing a few words here and there, or changing the order of a few words in a sentence or paragraph, is still plagiarism. Plagiarism is one of the most serious crimes in academia." (Pechnik, 2001; p.10⁸) .

"You plagiarize even when you do credit the author but use his exact words without so indicating with quotation marks or block indentation. You also plagiarize when you use words so close to those in your source, that if your work were placed next to the source, it would be obvious that you could not have written what you did without the source at your elbow." (Booth, Colomb, & Williams, 1995; p. 167⁹)

We have established that taking a paragraph or, for that matter, even a sentence, from another source, and using it in our writing without enclosing the material in quotations

⁸ Pechnick, J. A. (2001). A short guide to writing about biology, 4th Edition. New York: Addison Wesley Longman.

⁹ Booth, W. C., Colomb, G. G., & Williams, J. M. (1995). The craft of research. Chicago: The University of Chicago Press.

can constitute plagiarism. Inappropriate paraphrasing happens far too often among students and professionals.

The available evidence indicates that one of the reasons for engaging in the misappropriation of text lies with an author's unfamiliarity with the concepts and /or language with which s/he is working. The ability to properly paraphrase technical text depends in large part on the author's conceptual understanding of the ideas being described and that author's mastery and command of the technical language involved. Accordingly, correct paraphrases are easy when the language of the original material allows us many options for substituting words and phrases.

Guideline 7: In order to make substantial modifications to the original text that result in a proper paraphrase, the author must have a thorough understanding of the ideas and terminology being used.

An analogous situation can occur at the professional level when we wish to paraphrase, say, a complex process or methodology. Traditional writing conventions give us the option to take any material that is difficult to paraphrase and enclose in quotation marks. Therefore, if the text is so technical that it would be very difficult or near impossible to modify substantially without altering its meaning, then perhaps it would be best to leave it in the original author's wording and simply enclose it in quotation marks. However, unlike disciplines, such as literature or philosophy, quoting in certain disciplines (e.g., biological sciences) is not encouraged (see Pechnick, 2001¹⁰). One would be hard pressed to find an entire sentence quoted, let alone a short paragraph, in the pages of prestigious journals in the biomedical sciences (e.g., *Nature*, *Science*, and *New England Journal of Medicine*).

In sum, the reality is that traditional scientific prose and diction do not always facilitate paraphrasing.

Guideline 8: A responsible writer has an ethical responsibility to readers, and to the author/s from whom s/he is borrowing, to respect others' ideas and words, to credit those from whom we borrow, and whenever possible, to use one's own words when paraphrasing.

¹⁰ Pechnick, J. A. (2001). *A short guide to writing about biology*, 4th Edition. New York: Addison Wesley Longman

As has been pointed earlier, one must give credit to those whose ideas and facts we are using. One general exception to this principle occurs when the ideas we are discussing represent 'common knowledge'. If the material we are discussing is assumed to be known by the readership, then one need not cite its origin.

Guideline 9: When in doubt as to whether a concept or fact is common knowledge, provide a citation.

Consider the following scenario: Two researchers who have collaborated on various projects have, in the past, jointly published a number of papers. While working on a manuscript from one of their joint projects, the researchers experience a profound difference of opinion regarding the direction of the current project, leading to the eventual break-up of their association. Soon after, one of the researchers moves to another institution in another country. A year later, the remaining researcher decides to finish writing the manuscript and submits it for publication with his name as the sole author.

By appropriating the joint manuscript and submitting it under his name has plagiarism taken place?

Many individuals and institutions, including the National Science Foundation, would consider this scenario a form of plagiarism. However, although clearly an ethical breach has taken place, this situation may be classified as an authorship dispute, and not a type of scientific misconduct.

Self-Plagiarism

QRDI considers redundant publications and academic self-plagiarism as serious offenses that may constitute plagiarism:

Redundant and Duplicate Publications

Guideline 10: Authors who submit a manuscript for publication containing data, reviews, conclusions, etc., that have already been disseminated in some significant manner (e.g., published as an article in another journal, presented at a conference, posted on the internet) must clearly indicate to the editors and readers the nature of the previous dissemination.

A large proportion of scientific and scholarly research is carried out by college and university professors. For these academics, the presentation and subsequent publication of research in peer-reviewed scholarly and scientific journals represents one of the most important criteria for gaining tenure and/or promotion. Consequently, the more publications authored by an academic, the better his/her chances of getting a promotion or tenure.

The current academic reward system is thought to produce a tremendous amount of pressure to generate as many publications as possible. Unfortunately, some of the most serious negative outcomes of the present system are the problems of duplicate publication and of redundant publication. In the sciences, duplicate publication generally refers to the practice of submitting a paper with the same data to more than one journal, without alerting the editors or readers to the existence of other identical published versions. The new publication may differ only slightly from the original by, for example, changes to the title, abstract, and/or order of the authors.

Papers representing instances of duplicate publication almost always contain identical or nearly identical text relative to the earlier published version. The related and more frequent practice known as redundant publication occurs when researchers publish the same data, with a somewhat different textual slant within the body of the paper. For example, redundant papers may contain a slightly different interpretation of the data or the introduction to the paper may be described in a somewhat different theoretical or empirical context. Sometimes, additional data or somewhat different analyses of the same, previously published data are reported in the redundant paper.

The fact of the matter is that each of these types of practices is frowned upon by most scientific journals (see Kassirer & Angell, 1995¹¹) and most of the major scientific writing guides caution against them (e.g., Iverson, et al., 1998¹²).

While the accepted practice for authors of manuscripts that are intended to be published as trade books is to send their manuscript to several publishers, the standard practice

¹¹ Kassirer, J. P. & Angell, M. (1995). Redundant publication: A reminder. *The New England Journal of Medicine*, 333, 449-450. Retrieved, March 7, 2003 from <http://content.nejm.org/cgi/content/full/333/7/449>.

¹² Iverson, C, et al. (1998). *American Medical Association Manual of Style. A Guide for Authors and Editors*, 9th ed. Baltimore: Williams and Wilkins.

for authors of scientific or scholarly papers is to submit their paper for publication to a single journal.

An author may submit the same paper or a revised version of it to another journal once it is determined that the first journal will not publish it. Only under exceptional circumstances would it be acceptable for a paper published in one journal to appear in another journal. In spite of these universally accepted practices, redundant publication continues to be a problem in the biomedical sciences. For example, in a recent editorial, Schein¹³ (2001) describes the results of a study he and a colleague carried out in which the authors found that 92 out of 660 studies taken from 3 major surgical journals were actual cases of redundant publication.

While some authors have estimated that between 10% to 20% of the biomedical literature is laden with redundant publications (Jefferson, 1998¹⁴), a recent review of the literature suggests the more conservative figure of approximately 10% (Steneck, 2000¹⁵).

The current situation has become so serious, however, that many biomedical journals have begun to publish policies clarifying their opposition to multiple submissions of the same paper. Some journals now request that authors who submit a manuscript for review must also submit previously published papers or those that are currently under review that are related to the topic of the manuscript under consideration. This requirement has been implemented to allow editors to determine whether the extent of overlap between such papers warrants the publication of yet another paper. If, in the opinion of the editor, the extent of overlap was substantial, the paper would likely not be published.

Instances in which dual publication may be acceptable:

Some authors who submit the same article to more than one journal do so with the rationale that their paper would be of interest to each set of readers who would probably not otherwise be aware of the other publication. Indeed, circumstances have been

¹³ Schein, M. (2001). Redundant publications: From self-plagiarism to "Salami-Slicing". *New Surgery*, 1, 139-140.

¹⁴ Jefferson, T. (1998). Redundant publication in biomedical sciences: Scientific Misconduct or necessity? *Science and Engineering Ethics*, 4, 135-140.

¹⁵ Steneck, N. H. (2000). Assessing the integrity of publicly funded research. In *Proceedings of the First ORI Research Conference on Research Integrity*. Office of Research Integrity (pp. 1-16)

identified which would justify the dual publication of a paper. However, the editors of both journals would have to agree to this arrangement and the existence of each version of the published paper would have to be made clear to each set of readers. Blancett, Flanagan, & Young, 1995¹⁶ (cited in Iverson, et al., 1998¹⁷) provide a number of scenarios where dual publication may be acceptable (see also the International Committee of Medical Journal Editors' Uniform Requirements for Manuscripts Submitted to Biomedical Journals, 1999). For example, summaries or abstracts of papers that are published in conference proceedings are often subsequently published in expanded form as a journal article.

Another situation where redundant publication may be acceptable occurs when an article published in one language is translated into a different language and published in a different journal. In these and other cases where redundant publication is being considered by the author, the editors and the readers of each paper must be made aware that a second published version exists.

Why redundant publication must be avoided:

Journal space is notoriously competitive in scholarly and scientific publishing, thus a paper that appears in two different journals unbeknownst to readers and editors robs other authors the opportunity to publish their worthwhile work. Moreover, referees often volunteer their valuable time to review authors' work in the service of science and scholarship.

Duplicate or redundant publications waste the time and limited resources of the editorial and peer review system. More importantly and particularly in the sciences, is the fact that dual/redundant publications mislead researchers as to the true nature of a given database. For example, an author who wishes to study the significance of an experimental effect or phenomenon using sophisticated statistical techniques, such as meta-analysis, will arrive at erroneous results and conclusions if the same experiment

¹⁶ Blancett, S. S., Flanagan, A., & Young, R. K. (1995). Duplicate publication in the nursing literature. *IMAGE Journal of Nursing Scholarship*, 27, 51-56.

¹⁷ Iverson, C, et al. (1998). *American Medical Association Manual of Style. A Guide for Authors and Editors*, 9th ed. Baltimore: Williams and Wilkins.

were to be counted twice. Consider the following anecdote reported by Wheeler (1989¹⁸)

“In one such instance, a description of a serious adverse pulmonary effect associated with a new drug used to treat cardiovascular patients was published twice, five months apart in different journals. Although the authors were different, they wrote from the same medical school about patients that appear identical. Any researcher counting the incidence of complications associated with this drug from the published literature could easily be misled into concluding that the incidence is higher than it really is.” (p.1).

It should be clear to the reader that redundant and duplicate publication must be avoided, for it has the potential for distorting the existing data base, possibly resulting in the establishment of flawed public health policies.

Academic self-plagiarism (double-dipping):

Redundant publication has a direct counterpart in the area of academic dishonesty- it is referred to as ‘double dipping’. It occurs when a student submits a whole paper or a substantial portion of a paper to fulfill a course requirement, even though that paper had earlier been submitted to satisfy the requirements for another course taught by a different professor.

Many college undergraduates and even some graduate students are not aware that this type of practice is a serious offense and constitutes plagiarism. Of course, as in redundant publication, submitting the same paper, or a large portion of a paper, to two different courses is entirely acceptable if the instructors of both courses were informed by the student of the double submission, and if both agreed to the arrangement. However, some institutions have specific policies prohibiting this practice.

Salami slicing (data fragmentation):

Guideline 11: Authors of complex studies should heed the advice previously put forth by Angell & Elman (1989): If the results of a single complex study are best presented as a ‘cohesive’ single whole, they should not be partitioned into individual papers. Furthermore, if there is any doubt as to whether a paper submitted for publication

¹⁸ Wheeler, A. G. (July, 10, 1989). The pressure to publish promotes disreputable science. *The Scientist*, 3 (14): 11, retrieved March 6, 2003.

represents fragmented data, authors should enclose other papers (published or unpublished) that might be part of the paper under consideration.

Although often associated with redundant publication, the segmenting of a large study into two or more publications is somewhat different than reporting exactly the same data in two publications, but it is a similarly unacceptable scientific practice. As with redundant publication, salami slicing can lead to a distortion of the literature by leading unsuspecting readers to believe that data presented in each salami slice (i.e., journal article) is derived from a different subject sample.

Consider the examples provided by Kassirer and Angell (1995¹⁹), former editors of The New England Journal of Medicine:

“Several months ago, for example, we received a manuscript describing a controlled intervention in a birthing center. The authors sent the results on the mothers to us, and the results on the infants to another journal. The two outcomes would have more appropriately been reported together. We also received a manuscript on a molecular marker as a prognostic tool for a type of cancer; another journal was sent the results of a second marker from the same pathological specimens. Combining the two sets of data clearly would have added meaning to the findings.” (p. 450).

As with redundant and duplicate publication practices, this type of misrepresentation can distort the conclusions of literature reviews if the various segments of a salami publication that include data from a single subject sample are included in a meta-analysis under the assumption that the data are derived from independent samples. For this reason, the breaking up of a complex study containing multiple dependent measures into separate smaller publications can have serious negative consequences for the integrity of the scientific database. In certain key areas of biomedical research the consequences can result in policy recommendations that could have adverse public health effects.

One element likely to be common to both redundant publication and salami publication is the potential for copyright infringement. This is because data or text (or both

¹⁹ Kassirer, J. P. & Angell, M. (1995). Redundant publication: A reminder. *The New England Journal of Medicine*, 333, 449-450. Retrieved, March 7, 2003 from <http://content.nejm.org/cgi/content/full/333/7/449>

elements) appearing in one copyrighted publication will also appear in another publication whose copyright is owned by a different entity.

Copyright Law

For authors who wish to have their papers published, the typical arrangement in scholarly and scientific research is for the copyright to be transferred to the publisher of the journal. The journal can then reproduce and distribute the author's work legally.

With some exceptions, the unauthorized use of copyrighted work violates copyright law and represents copyright infringement. Exceptions to copyright infringement fall under the doctrine of "Fair Use" of copyright law and represent instances in which the activity is largely for nonprofit educational, scholarship, or research purposes. For example, in some situations, a student or individual researcher may make a copy of a journal article or book chapter for his/her own personal use without asking permission. Likewise, an author describing the results of a published study may take a couple of lines of data from a table from a journal article, include a citation, and reproduce it in his/her paper.

Copyright Infringement, Fair Use, and Plagiarism

Guideline 12: Because some instances of plagiarism, self-plagiarism, and even some writing practices that might otherwise be acceptable (e.g., extensive paraphrasing or quoting of key elements of a book) can constitute copyright infringement, authors are strongly encouraged to become familiar with basic elements of copyright law.

The use of relatively short direct quotes from a published work does not usually require permission from the copyright holder as it typically falls under the "fair use" provision. However, extensive quoting of text from a copyrighted source can constitute copyright infringement, whether the appropriated text is properly enclosed in quotation marks or correctly paraphrased, even if a citation is provided according to established scholarly conventions. Obviously, the same applies if the material is plagiarized outright.

Moreover, the reader should note that intellectual or artistic work does not need to be published in order to be copyrighted. In fact, the moment the work becomes final it is automatically copyrighted. Thus, instances of plagiarism, whether from a published article or an unpublished manuscript, such as a grant proposal, can also constitute

copyright infringement, though, obviously, copyright infringement does not always constitute plagiarism.

Iverson, et al., (1998) cautions the reader that the amount of text that can be taken from a copyrighted source without permission depends on its proportion to the entire work. However, the reader should also note that some publishers have established word limits for borrowing text.

Given the above considerations, it should be clear that redundant or duplicate publication, which occurs without the respective editors' knowledge, is not only considered a form of self-plagiarism, but it may also qualify as copyright infringement because the copyright is held by the publisher; not by the author. This would certainly be the case if the original article were published in a journal owned by one publisher and the second article were to appear in a journal owned by a different publisher.

Text Recycling

Programmatic research often involves publishing papers describing empirical investigations that use nearly identical or identical methodologies. Similarly, the background literature cited for such papers may be similar or exactly the same as that of related papers by the same authors. Therefore, it is possible to have two or more papers describing legitimately different observations, but containing almost identical methodology, literature reviews, discussions, and other similar or identical textual material. Given the enormous pressure to publish felt by many researchers and the ease with which text can be manipulated with word processing software, these situations present unique challenges because of the allure to simply use as templates portions of text written for previously published papers and include them in a new paper. Thus, we define text recycling as a writer's reuse of portions of text that have appeared previously in other works.

Forms of Acceptable Text Recycling

As with redundant publication, certain types of text recycling appear to be acceptable within the biomedical and social sciences even though they seemingly violate the spirit of the writer's implicit contract. Here are specific examples.

Recycling text from an Institutional Review Board (IRB) application, Animal Care and Use Committee, Grant application, or other form of unpublished 'internal' proposal.

Academics and researchers who write research proposals, either for the purpose of seeking funding or for internal or ethical review will often use the same material, though likely in expanded form, in a paper that is later published. This is an accepted practice because these proposals are typically never published and are only reviewed by a small number of individuals. On the other hand, in some instances there may be proprietary copyright issues with respect to an unpublished proposal or report that was originally written for a private enterprise when the author was employed by that institution. Therefore, in these cases permission to subsequently publish portions of material originally written for use by, say, a corporate entity should be sought. On the other hand, the recycling of text from IRB, grants, and other types of proposals reviewed within academic institutions is generally considered an accepted practice.

Recycling Papers Given at a Conference

Often, scientists who make presentations at conferences distribute preliminary copies of their papers to the audience. Sometimes after the presentation, and perhaps based on the audience's feedback of the scientist's presentation, some modifications are made to the paper and it is subsequently submitted for publication to a journal. This practice is also generally acceptable.

There are instances where some caution should be observed. For example, in cases where the conference abstracts or even the preliminary papers themselves are subsequently published as proceedings by the sponsoring organization, the author should inquire as to whether that organization permits republication of their materials. Authors should also keep in mind that some editors may consider the above scenario as a case of redundant publication. Therefore, they should always inform an editor if an abstract or a brief version of a paper being submitted for publication has already appear in the proceedings of a conference. Lastly, in cases where a paper is based on a conference presentation, the standard practice is to also inform the reader. This is usually done in the form of a footnote or endnote.

Borderline/Unacceptable Cases of Text Recycling

Guideline 13: While there are some situations where text recycling is an acceptable practice, it may not be so in other situations. Authors are urged to adhere to the spirit of ethical writing and avoid reusing their own previously published text, unless it is done in a manner consistent with standard scholarly conventions (e.g., by using of quotations and proper paraphrasing).

Recycling Sections of a Complex Method Section from a Previously Published Paper

In writing methodology sections of empirical papers, one of the goals of authors is to provide all the necessary detail so that an independent researcher can replicate the study. Because these sections are often highly technical and can be laborious to write, authors of multiple papers using the same methodology will sometimes recycle text with little or no modification from a previously published paper and use it in a new paper.

Technically, if an author were to adhere to the ‘implicit contract’ between reader and writer embodied in the concept of ethical writing and to the strict rules of proper scholarly conduct, s/he would need to put any verbatim text from the method section in quotation marks and appropriately paraphrase any other recycled text that is not placed in quotations. Curiously, such practice is seldom, if ever, followed in these instances. Instead, what seems to have become a routine practice for authors is to recycle, with some minor modifications, substantial portions of these sections (see Roig, 2002²⁰). Judging by instructions to authors in at least one journal, it appears that, in the past, some authors have not bothered to make even minor changes when they repeatedly recycle the same method section from article to article. For example, in a section titled “Avoidable errors in manuscripts” Biros (2000²¹), editor-in-chief of Academic Emergency Medicine writes:

"Methods are reported that were not actually used. [This] most frequently occurs when an author has published similar methods previously and has devised a template for the methods which is used from paper to paper. Reproducing the template exactly is self-plagiarism and can be misleading if the template is not updated to reflect the current research project." (p. 3).

²⁰ Roig, M. (2002). Recycling portions of text from the same author/s previously published papers in psychology: An exploratory study. Paper presented at the second Office of Research Integrity's conference on Research Integrity, Bethesda, MD

²¹ Biros, M. H. (2000). Advice to Authors: Getting Published in Academic Emergency Medicine, retrieved March 6, 2003.

In addition to constituting self-plagiarism, there is another reason why this practice may be problematic. Consider the following scenario: An author takes a substantial amount of text from one of her papers that had been published in a journal owned by one publisher and recycles that text

in a paper that will now be published by a journal owned by a different publisher. In this situation, the author may be violating copyright rules.

The Lesser Crimes of Writing

- Carelessness in citing sources.
- Relying on an abstract or a preliminary version of a paper while citing the published version.
- Citing sources that were not read or thoroughly understood.
- Borrowing extensively from a source but only acknowledging a small portion of what is borrowed.
- Ethically inappropriate writing practices.
- Selective reporting of literature.
- Selective reporting of methodology.
- Selective reporting of results.

Authorship Issues and Conflicts of Interest

Advances in biotechnology, communication, and computing have allowed scientists to investigate increasingly complex problems. It is not uncommon these days for large-scale investigations to be carried out by a handful of scientists from various institutions sometimes spanning continents. Groups and individual contributors may work on the same or different key aspects of a project and these collaborations will invariably result in multiple-authored publications. Unfortunately, some of these collaborative efforts have given rise to disputes about authorship issues. The most frequent disputes center on the following questions:

- 1) Which members of a research team merit authorship?
- 2) Who is designated as senior author of the resulting journal article?

3) How is the rest of the authorship order determined?

Given that authorship, particularly the designation of senior author of a paper in scientific and scholarly publications plays such a prominent role in the current merit system, it is extremely important to have sound guidelines for establishing the conditions for authorship. For example, in writing about these issues, Steinbok (1995²²) questions whether various situational roles in biomedical research merit authorship. He writes: “Should the head of the department automatically be an author? Should the various clinicians involved in the care of the patients who are subjects of a paper automatically be authors? What about the person who goes through a set of charts and puts information into a database? What about the statistician who analyzes the data?” (p. 324).

Researchers are advised to consult their professional associations for any authorship guidelines that they may have also developed. Researchers are also advised to consult the institutions with which they are affiliated, as well as the individual journals to which they intend to submit a manuscript.

Deciding on Authorship

Whether students or professionals, individuals collaborating on a research project should discuss authorship issues, such as who will be designated as senior author, the order of other authors, and any other individual acknowledgements for other contributions to the project, before initiating work on the project. Any agreement reached regarding authorship should be recorded in writing and should outline the formula used for determining whom the senior author should be and the authorship order for the rest of the investigators involved in the project. The agreement should be sufficiently flexible to accommodate changes that may arise while the project is in progress (e.g., an individual not initially designated as author ends up making substantive contributions that earn her authorship in the paper, or an individual previously designated as author fails to carry out the designated duties, making his contributions not sufficient or important to merit authorship).

Establishing Authorship

²² Steinbok, P. (1995). Ethical considerations relating to writing a medical scientific paper for publication. *Child's Nervous System*, 11, 323-328.

Only individuals that make substantive intellectual contributions to the project should be listed as authors and the order of authorship should be based on the degree of importance of each author's contribution to the project. The latter may be difficult to establish in disciplines, such as particle physics, where a team of several dozen, perhaps even over one hundred contributors, may author a single paper. Authorship entails the ability to publicly take responsibility for the contents of the project (e.g., being sufficiently knowledgeable about the project to be able to present it in a formal forum). What determines whether a contribution is substantive or not is a matter of debate and, technically, it should not matter whether the aim of the collaboration is an internal technical report, a conference presentation, or an article targeted for refereed journal.

Generally, examples of substantive contributions include, but are not limited to, aiding in the conceptualization of the hypotheses, designing the methodology of the investigation and significantly contributing to the writing the manuscript.

"Mechanical" activities, such as entering information in a database or merely collecting actual data (e.g., running subjects, collecting questionnaires) are not sufficient grounds for authorship, but should be acknowledged in a footnote. In addition, "honorary" or "courtesy" authorship assigned on the basis of some leadership position (e.g., such as being head of the department where the research is carried out) must also be avoided.

Authorship in Faculty-Student Collaborations

Graduate and, sometimes, undergraduate students, are increasingly involved in research collaboration with their faculty. Along with high grade point averages and scores on standardized testing, undergraduate research experience is one of the most valued criteria for advanced graduate training. As a result, an increasing number of undergraduates are becoming involved in research and authoring journal articles.

The authorship guidelines for students are different than those for other professionals. According to Fine and Kurdek (1993²³) who have written on these issues:

²³ Fine, M. A. and Kurdek, L. A. (1993). Reflections on determining authorship credit and authorship order on faculty-student collaborations. *American Psychologist*, 48, 1141-1147

"To be included as an author on a scholarly publication, a student should, in a cumulative sense, make a professional contribution that is creative and intellectual in nature, that is integral to

completion of the paper, and that requires an overarching perspective of the project. Examples of professional contributions include developing the research design, writing portions of the manuscript, integrating diverse theoretical perspectives, developing new conceptual models, designing assessments, contributing to data analysis decision and interpreting results..." (p. 1145).

Faculty mentors might think of the above student guidelines as being rather harsh. However, consider part of the rationale for these authors' position that awarding authorship to an undeserving student is unethical:

"First, a publication on one's record that is not legitimately earned may falsely represent the individual's scholarly expertise. Second, if because he or she is now a published author, the student is perceived as being more skilled than a peer who is not published, the student is given an unfair advantage professionally. Finally, if the student is perceived to have a level of competence that he or she does not actually have, he or she will be expected to accomplish tasks that may be outside the student's range of expertise" (p. 1143).

A Brief Overview on Conflict of Interests

Guideline 14: Authors must become aware of possible conflicts of interest in their own research and to make every effort to disclose those situations (e.g., stock ownership, consulting agreements to the sponsoring organization) that may pose actual or potential conflicts of interest.

When an investigator's relationship to an organisation affects, or gives the appearance of affecting, his/her objectivity in the conduct of scholarly or scientific research, a conflict of interest is said to occur. The relationship does not have to be a personal nor a financial one. For example, a conflict of interest could arise when a family member of a researcher is associated with an organisation whose product the researcher is in the process of evaluating. Does the family member's association with the organisation compromise his ability to carry out the evaluation objectively? Let's consider another example, imagine an investigator who has been conducting basic science on the various processes involved

in the release of certain neurotransmitters and whose work has been steadily funded by the maker of one of the most popular antidepressants. Now imagine a new situation where the research carried out by that investigator naturally leads him to study the efficacy of that same antidepressant while being funded by the company that manufactures it. In conducting the research, is that investigator's objectivity affected by his long-standing relationship to the drug company? Perhaps it hasn't.

Naturally, some conflicts of interest are unavoidable and having a conflict of interest is not in itself unethical. However, the increasing role industry has played in sponsoring research that bears on commercial applications has led to a focus on how such sponsorship affects the research process and outcomes. The situation appears to be particularly serious in the realm of pharmaceutical research. For example, Stelfox, Chua, O'Rourke, and Detsky (1998²⁴) collected a sample of published reports (e.g., studies, letters to the editor) on the safety of calcium channel blockers, drugs used to treat cardiovascular disease and correlated the authors' conclusions about their efficacy with whether or not the investigators had received financial support from companies that manufacture those types of drugs. The results revealed a strong association between conclusions that were supportive of the drugs and prior financial support from companies that were associated with those types of drugs.

To ameliorate the situation, research institutions, professional societies, and an increasing number of journals have formulated guidelines for dealing with potential conflicts of interest. Essentially, these guidelines require authors to disclose such conflicts either in the cover letter to the editor of the journal to which an investigator submits a manuscript and/or in a footnote on the manuscript itself.

[This Policy and the Plagiarism Guide in the enclosed Appendix use the HHS Office of Research Integrity Plagiarism Guidelines and U.S. Federal Research Misconduct regulations as models.]

²⁴ Stelfox, H. T., Chua, G., O'Rourke, K., Detsky, A. S. (1998). Conflict of interest in the debate over calcium-channel antagonists. *The New England Journal of Medicine*, 338, 101-106. Electronic version retrieved June 20th, 2003, <http://content.nejm.org/cgi/content/full/338/2/101>