

RESEARCH ETHICS

Authorship of research papers: ethical and professional issues for short-term researchers

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Although the International Committee of Medical Journal Editors has published clear guidance on the authorship of scientific papers, short-term contract research workers, who perform much of the research that is reported in the biomedical literature, are often at a disadvantage in terms of recognition, reward and career progression. This article identifies several professional, ethical and operational issues associated with the assignment of authorship, describes how a university department of primary care set about identifying and responding to the concerns of its contract research staff on authorship and describes a set of guidelines that were produced to deal with the ethical and professional issues raised. These guidelines include directions on how authorship should be negotiated and allocated and how short-term researchers can begin to develop as authors. They also deal with the structures required to support an equitable system, which deals with the needs of short-term researchers in ways that are realistic in the increasingly competitive world of research funding and publication, and may offer a model for more formal guidelines that could form part of institutional research policy.

questions about the use of explicit, transparent criteria for authorship and issues of inappropriately assigned authorship.² Authorship credit has been traditionally determined by departmental politics, whereby those with power and status decide who receives the credit. The politicised scientific environment deeply affects “who gets their name on what”, as authorship involves staking and maintaining territorial rights, colonisation and empire building.³

Authorship provides recognition among peers and establishes intellectual and professional credibility, which contribute to career progression. In tandem with these benefits, however, come responsibility and accountability for the dissemination of research findings.⁴ Much biomedical research is undertaken for the explicit purpose of supporting evidence-based diagnostic and treatment decisions. It is crucial therefore that those taking credit for the work have actually carried it out and are qualified to guarantee the findings. This is easier said than done, because bringing a research project to fruition often requires the contribution of a multidisciplinary team, which may make it difficult for each author to guarantee the quality of research undertaken by others. Clinical trials often cross institutional and international boundaries, so that the need to build relationships for future collaboration has meant fostering goodwill among the many players. This interdependency may encourage inappropriately assigned authorship—for instance, by rewarding collaborators who achieve high recruitment rates in trials. But rubberstamping someone’s name on to your research paper in the hope that they will return the favour is not the only problem affecting authorship. Two other forces strongly affect the academic publication process: institutional politics and financial competition.

Research in the higher education sector is increasingly conducted with an eye on the financial main chance and not, as may naively be believed, with a selfless dedication in the pursuit of knowledge. Instead, the driving force is the quest for funding to support research, which in turn supports the career.⁵ In the UK, institutional survival depends on the grading obtained in the Research Assessment Exercise (RAE), whereby scores are dependent on the quality of research output and the amount of research income.⁵ Peer-reviewed scientific papers are one of the main determinants of the RAE

Short-term, contract researchers are key members of the biomedical community. A recent report from the UK’s Academy of Medical Sciences confirms that most research conducted in higher-education institutions is carried out by short-term researchers, with a short-term contract being defined as less than 5 years.¹ The opportunity to report the results of a research study—to be an author—is likely to be an important component of career progression for contract researchers. Some important ethical and professional issues on the authorship of publications arising from research, however, are not dealt with in this otherwise excellent report. For example, there is often a serious discrepancy between those who carry out the research and those who receive the credit for it. In this article, we explore authorship issues relevant to clinical and non-clinical short-term contract researchers and report on how they have been dealt with in an academic department of general practice and primary care.

PROBLEMS IN ACADEMIC AUTHORSHIP

The authorship of research papers is associated with a range of problems, not least the ethical

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Abbreviations: ICMJE, International Committee of Medical Journal Editors; RAE, Research Assessment Exercise

grade. Each person who is RAE returnable needs to publish at least four papers in peer-reviewed, high-impact journals during the RAE assessment period. In other countries, higher education institutions use, or are considering using, similar research assessment systems in which these bibliometrics play an important part. Producing papers is often a criterion for obtaining tenure in other university settings. Although this link with academic reward is seen by some as being responsible for the failure of the authorship system,⁶ the reality is that the currency of an academic research department is still peer-reviewed publication.⁷

AUTHORSHIP PROBLEMS FOR CONTRACT RESEARCHERS

Although contract researchers are often valued members of multidisciplinary research teams, they do not enjoy the benefits afforded to both tenured staff and clinician researchers, in terms of advancement and career development. One of the most poignant complaints from contract researchers is that they carry out the work and yet do not receive the credit and recognition for their efforts in the form of authorship. Misappropriation of authorship in this way undermines the integrity of the system.⁸ Other examples of publication misconduct, which remain matters of contemporary concern, include fraud, plagiarism and duplicate publication.^{9 10}

In the hope of solving some of these problems, the International Committee of Medical Journal Editors (ICMJE), previously known as the Vancouver Group, developed guidelines in 1997,¹¹ which were updated in 2004,¹² to take account of the changing reality of multiauthored publications. There is still evidence that authorship problems persist—many researchers still cannot identify the basic ICMJE tenets and these guidelines are still not adhered to in a substantial proportion of peer-reviewed medical journals. For example, Hwang and colleagues¹³ found that only 68% of researchers fulfilled the ICMJE authorship criteria in contributing to articles published in the journal *Radiology* between 1998 and 2000, and Bates and colleagues, reviewing publications in the *Annals of Internal Medicine*, the *British Medical Journal* and the *Journal of the American Medical Association* concluded in their recent publication¹⁴ that honorary authorship was still alive and well, and that general medical journal publication policies diverged considerably from the recommendations of ICMJE.

These problems were also taken up by the Council of Science Editors. In an important publication in 1999, Biagioli *et al*¹⁵ emphasised that guidelines were required because of a human tendency to attempt to maximise their own credit, at the same time minimising their responsibility.¹⁵ This publication identified the threats, both covert and overt, of greed and fraudulent behaviour, and associated ethical authorship with issues of credit and responsibility. A more fundamental characteristic of ethical authorship is probably honesty.

In this article, we explain how one university department of general practice and primary care dealt with the concerns of its short-term contract researchers and developed policy guidelines in an attempt to rectify reported authorship problems. While developing a departmental policy on authorship, the contract researchers met to prepare a formal record of their concerns on three occasions. The first meeting was to voice and record their issues, the second to understand the departmental RAE requirements as explained by the head of department (RJ) and the final one to prepare a summary of their most pressing concerns. Department faculty were then asked for their input about the issues raised by the contract researchers and were encouraged to respond in writing. These guidelines now form part of the department's research policy.

ISSUES RAISED BY THE CONTRACT RESEARCHERS

The most pressing concern for contract researchers is the need to secure authorship to facilitate their career development (box 1). Although there is no formal career structure for many non-clinical academics, they need to get research published to progress. Without authorship, they lack the credibility to apply for grants in their own name. Although the current policy of most organisations giving grants allows only permanent staff to apply for grants, our contract researchers have asked for permission to apply independently for grants in the future. Mostly, they wanted clear guidelines so that they knew at the outset of each project what they could expect in terms of publishing opportunities. In addition, they found that because of hierarchy and the status of senior academics, there were often no formal avenues of appeal against authorship decisions made by the principal investigator. Resolution of difficulties was often too subjective and dependent on personality, instead of on policy. The researchers were also worried about who should be included in the sometimes lengthy list of authors and how to decide on the order of the names, although they reported that the order of authors was less a problem than being left out altogether. Many had dedicated years to a project, only to have the contract expire before publication. They had moved on to a new contract or to a new location and therefore lost ownership of the project, with a concomitant loss of publication credit.

Another issue that emerged was that all short-term contract personnel would like to be given the opportunity for at least one first-authored publication. It is not possible, however, to guarantee first authorship to all junior researchers, even though they may make a substantial contribution to a research project. For example, the research question considered by the project may have been identified before their appointment, with the project protocol written and funding obtained. Typically, the first author is the one most associated with the work.¹⁶ This "agreed" first author is responsible for writing the first draft, but if the researchers have moved on, they may not be available to prepare it. Furthermore, junior researchers may simply lack the experience to draft a paper, or it may require such a degree of rewriting that, in reality, they did not write the first draft at all. Finally, part-time doctoral students doing contract research simultaneously with a research degree must deal with competing demands on their time to write up their thesis and complete their research project within the time limits of the contract. The time for them to write is taken into consideration by senior staff when the research proposal is

Box 1 Issues raised by the contract researchers group

- Carrying out data collection and analysis and drafting papers only to be refused first authorship or any authorship
- Carrying out data collection and analysis, but leaving the job before writing any drafts and not receiving authorship or acknowledgement
- Carrying out data collection and analysis as well as drafting papers, but not receiving authorship because they have now left their job
- Disagreement with the contents of a paper where a senior staff member is the first author and the researcher is one of the co-authors

prepared and staffing and funding requirements are calculated.

BASIS FOR POLICY GUIDELINES

Our intent in developing policy guidelines was to create an ethical, professional authorship policy for non-clinical or contract researchers, which was consistent, clear and fair, while balancing their needs for career advancement with the demands of the RAE and the other academic needs of their departments.

We adopted the ICMJE criteria for authorship as a starting point for our guidelines. The 2004 criteria¹² state that authorship credit should be based on (1) substantial contribution to conception and design, acquisition of data, or analysis and interpretation of data; (2) drafting the article or revising it critically for important intellectual content; and (3) final approval of the version to be published, with authors meeting all of these three conditions. The ICMJE criteria also point out that acquisition of funding, collection of data or general supervision of the research group, alone, does not justify authorship. As we wished to make these criteria inclusive, yet tailored to fit our particular organisational culture, we decided that we should make a clear statement of contributorship at the end of papers as appropriate, including acknowledgement of those who obtained funding, wrote the grant application and the paper, edited drafts, or had a lesser role in collecting or analysing the data. The contribution of supporting characters and agencies is sometimes almost as important as authorship credit and order. The ICMJE guidelines also state that each author “should have participated sufficiently in the work to take public responsibility for the content”.¹² Therefore, the basis of our policy in assigning or determining authorship is that each author should be sufficiently familiar with the project to be able to defend the work publicly.

We do not believe in “gift” authorship. This is defined as naming, as an author, a person who does not meet authorship criteria.¹⁷ A gift author is often the head of a research group or the department. Quite simply, increasing the number of undeserving authors on a publication increases the possibility that deserving authors will be omitted. Nor do we support “ghost” authorship. A ghost author is defined as a person who is not listed as an author but who made contributions that merited authorship.⁸ Omitting the name of the true author—for example, the contract researcher—at the time of publication constitutes ghosting, which is not consistent with integrity in publication.

GUIDELINES

We decided to write and distribute formal guidelines as a result of these discussions (box 2). The first step is to ensure that the issue of authorship is raised at the outset of any project. This includes preparing a research plan outlining anticipated papers, along with their proposed authorship, and agreeing this plan among the research team. In addition, the writing of each paper should be preceded by a detailed discussion of its authorship. This should be completed before any drafts are written. Furthermore, having guidelines allows opportunity for appeal and arbitration. To reduce the possibility of future disagreement, we have left open the possibility for negotiation between the researcher and the principal investigator. This allows experienced researchers to negotiate terms for their particular career needs that may not be applicable to inexperienced researchers, as well as for those aspiring to lectureships.

Negotiations between the principal investigator and the researchers on working and publishing arrangements should not be antagonistic, but should progress in a positive direction, on the basis of these guidelines. In this way, more

Box 2 Guidelines

- Ensure that whoever writes the first draft gets first authorship. The order of authorship on the byline should be a joint decision of the co-authors.
- Ensure that an agreement is negotiated early, which provides clarity of roles and plans for papers.
- Ensure that there is a shared understanding with the supervisor of the duties as defined by the job description.
- Ensure that the annual appraisals are used to discuss progress, set new objectives or explore any areas of difficulty or concern.
- Ensure that avenues of appeal are open to contract researchers.

senior researchers who may be aspiring to faculty positions can negotiate terms favourable to their career requirements. These guidelines are not firm rules, but they provide a starting point from which negotiations can proceed without fear of reprisal.

Furthermore, contract researchers should be encouraged to be more proactive in the development of a publication record, instead of waiting until the end of the research contract period and publication of the results (box 3). For example, they should consider writing a position paper based on their literature review or a methodological critique based on the research study design and getting experience of presenting their ideas at meetings and conferences. Reading the literature and contributing to the correspondence columns is another important step on the journey to independent authorship. This is particularly relevant when the grant has expired before the write-up has begun, which limits the opportunity to be named as first author.

IMPLEMENTATION

These guidelines, which were developed at the instigation of our researchers and supported by senior academic staff, have now become part of our research policy, but were initially introduced on a voluntary basis. This meant that we did not have formal mechanisms to enforce compliance with them, although they were widely welcomed as providing a tangible and useful framework within which to negotiate research

Box 3 Suggestions for developing a publication record

- Ensure maximisation of your personal publication record by submitting articles or letters to journals in response to other publications. These need not be the top peer-reviewed journals to begin.
- Ensure an opportunity to prepare research reports for publication. Try to gain first author status and do most of the writing.
- Ensure an opportunity to prepare a conference paper or poster.
- Ensure maximum opportunity for career progression through the pursuit of a higher degree. (This department will pay one third of the part-time fees upfront and another one third upon successful and timely completion. Arrangements may vary elsewhere.)

conduct. They have not yet become part of institutional research policy—this would require further extensive negotiations with other academic disciplines outside the medical sciences, within which there may be differences in detail and emphasis.

COMMENTS

On a practical level, the Department of General Practice & Primary Care, King's College London, like many others, is keen to retain well-trained short-term researchers. They are valuable team members, without whom the department would not meet the requirements for the RAE. In addition, the learning curve researchers find themselves on in successive contracts is eased, as they have already become familiar with the organisational culture and institutional structure.

Our guidelines were developed in an attempt to correct inadequacies in our current authorship procedures and were based on ICMJE criteria. We recognise that these criteria are not perfect. It is possible to satisfy them without making a truly substantial contribution to the research effort and, as previously discussed, they have not been uniformly adopted by journal editors. There has also been a suggestion¹⁶ that there is a mismatch between the criteria for authorship outlined by the ICMJE and the self-identified contribution of researchers.

Firm implementation is essential but, unfortunately, misunderstandings will still occur. The publication of research papers continues to offer a range of opportunities for unethical behaviour^{18, 19} and two factors in particular may counterbalance our preventive efforts on misleading authorship. The first is the inevitable, uneven power relationship between the principal investigator and the researcher, which may impair objective decision making on entitlement to authorship. Secondly, authorship is intrinsically linked with career advancement, and therefore with status and success, and people are motivated to maximise these. For these reasons, we also provide an opportunity for appeal and arbitration by the head of department, although we recognise that this itself may represent a potential conflict of interest, which could be dealt with by identifying an external person or group able to make a final determination on these matters. Formal incorporation of a modified version of these guidelines, taking account of the requirements of other academic disciplines, into institutional research policy will be required if they are to become mandatory and enforceable.

When we began this exercise, we did not assume that these guidelines would resolve all the woes of the contract researcher. Nevertheless, we hope that they will alleviate problems with acquiring authorship, facilitate the career development of trained researchers, improve overall morale within the research community, and foster and promote harmonious working relationships. Indeed, a recent informal survey of department research staff has indicated that several

people have found the guidelines helpful in negotiating authorship issues with senior colleagues.

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