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Editorial

Applying the ICMJE authorship criteria to operational research in low-income countries: the need to engage programme managers and policy makers

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Introduction

Researchers conducting studies and publishing their work in peer-reviewed scientific journals are expected to comply with the authorship criteria of the International Committee of Medical Journal Editors (ICMJE). Virtually all peer-reviewed journals list these criteria in their Instructions for Authors. These guidelines (Table 1) were first published in 1979 (ICMJE 1979) by a small group of general medical journal editors, and they have, over the years, become the *de facto* rules for defining authorship in scientific journals.

The authorship criteria were modified over time, especially during the 1990s, when the notion of 'contributorship' was added. In doing so, the ICMJE's goal was to improve fairness and transparency in the authorship process. The Committee sought to attribute proper credit and responsibility for the work, so that anyone who made a 'substantial contribution' to at least one of the important components of the research process – design, data collection, data analysis or interpretation – was to be listed as an author. Those who did not meet authorship criteria were to be listed in 'Acknowledgements'. These principles rewarded those who did most of the work (e.g. graduate students); forced 'ghost authors' to be identified; and removed from the authors' list those with only limited involvement, such as professors running laboratories who had not actually been involved with the studies. Note that the ICMJE describes an author as 'someone who has made substantial intellectual contributions to a published study' (ICMJE 1979). While there can be some subjectivity in the interpretation of 'substantial contribution', the focus is, nevertheless, on publication.

Table 1 ICJME authorship guidelines for study authorship of manuscripts submitted to scientific journals

Authorship credit should be based 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
3. Final approval of the version to be published
Authors should meet criteria 1, 2 and 3

ICMJE, International Committee of Medical Journal Editors.

While these criteria have served their purpose well for academic research, our concern is that they do not extend beyond publication and are therefore less applicable for operational research. Operational research (OR) can be defined as the search for knowledge on interventions, strategies or tools that can enhance the quality, effectiveness or coverage of programmes in which the research is being conducted (Zachariah *et al.* 2009). At a recent OR training course (Harries *et al.* 2011a,b) organised by the Médecins Sans Frontières, the International Union Against Tuberculosis and Lung Disease (The Union) and several partners, a group of scientists, policy makers and health workers working mainly in low-income countries in Africa and Asia, struggled with authorship criteria as they apply to OR. The criteria as applied in academic research did not allow for key players in OR to be included, and there was a strong desire to address the issue. In this article, we discuss the dissonance between applying the ICJME authorship criteria and the OR goal of translating research findings into policy and practice, and how the criteria may be better applied to address this issue.

ICMJE authorship criteria and operational research

By definition, the goal of conducting OR is to influence policy and practice and improve health and healthcare-delivery systems – in essence an 'applied science' rather than a theory-building one (Ford & Maher 2013). In contrast, academic research is principally focused on seeking the 'truth' to research questions and as such its end products are presentation of the findings at national and international conferences and ultimately publication in peer-reviewed journals. The results of the studies may or may not be taken up further by policy makers, clinical practitioners, commercial concerns or intellectual property stakeholders, but for the research team itself, publication signifies the end of the research process, and the post-publication stages are not an intrinsic part of the research. Several funders (e.g. UK-AID) have now included dissemination of results (beyond just publication) as a requirement of funding. Laudably, progress reports for a number of funding agencies not only include scientific publications, but also dissemination in popular media and to policy makers. Where this is not a requirement, academic researchers may pay insufficient attention to dissemination of results and policy change.

On the other hand, given its goal of changing policy and practice, the OR journey is much longer and involves three stages after study completion: (i) effective dissemination to stakeholders in the targeted health programmes, (ii) scientific publication to further disseminate the findings, and (iii) efforts to change policy and practice. As part of its iterative nature, OR includes a follow-up stage to evaluate whether the desired changes have been achieved (Zachariah *et al.* 2012). In OR, publication is only one step in a process whose ultimate goal is to determine whether or not there has been any positive impact on the health of the end users (Zachariah *et al.* 2012). The current strict application of the ICJME authorship criteria by many researchers does not accommodate this core value of OR of including the key people involved in translating OR findings to policy and practice, namely health programme managers and policy makers in low-income countries.

If OR is to be successful, the commitment of these two key players is required. Engaging them at the conceptual and planning stages is vital so that studies are of direct relevance to their programmes and cover areas where maximal policy impact can be achieved. In OR, the guiding principles for generating research questions involve reviewing the objectives of the programmes, identifying the constraints that prevent these objectives from being met, and developing research questions around these constraints so that solutions can be found to enable realisation of programme objectives (Harries 2003; Zachariah *et al.* 2011). As national programme managers are most aware of their programme constraints, involving them in the early stages of generating study questions ensures that those questions are relevant. Similarly, national policy makers are best placed to evaluate whether findings identified by OR studies could be implemented. Involving them both would ensure that the research addresses relevant programme questions and that the answers would redirect programme policy. We suggest that in being involved in the conception and design of studies, programme managers and policy makers would have fulfilled the first criteria for authorship (Table 1).

There are good examples of studies from resource-limited settings where engagement and iteration with national policymakers at the beginning and completion of studies were vital to make changes on the ground. Three

examples are the following: one, an investigation of the burden and control of tuberculosis in a Malawi prison noted a high prevalence of tuberculosis (TB; Nyangulu *et al.* 1997) and led to the development of an integrated TB control programme in all prisons in the country (Harries *et al.* 2004). Both prison authorities and Ministry of Health officials were engaged from the beginning and implemented the study findings promptly. Two, district-based OR studies of cotrimoxazole prophylaxis therapy in rural Malawi had strong engagement of policy makers right from the beginning, resulting in swift translation into policy and practice at country level, in contrast to the situation in Uganda and Zambia, where excellent research was conducted, but cotrimoxazole uptake in routine services was slower (Hutchinson *et al.* 2010; Harries *et al.* 2011a,b). Three, a study of HIV patients in Nairobi, Kenya, reported higher losses to follow-up in a cohort that paid for antiretroviral treatment (ART) than one that received ART free-of-charge: acceptance of the findings by key people from the Ministry of Health led to ART being offered free-of-charge to all (Zachariah *et al.* 2008). Without engagement with policymakers in the early phases of each of these studies, the results would not have advanced beyond the publication stage.

A powerful incentive for adopting the findings of OR is for programme managers and policy makers to be study authors where they are engaged early in the conception stages of a research study. Their inclusion confers a level of accountability and responsibility for the study results, which in turn increases the probability that the findings would be adopted. Commitment to translating research findings into policy and practice is a substantial and intrinsic part of OR studies and is better achieved if policy makers are part of the research process.

The sentiment of engaging national stake holders has been echoed on a recent cover page of the Lancet that quoted Agnes Binagwaho, Rwanda's Minister of Health, who passionately stated 'No ethics committee, funder or research, or medical journal should approve, support or publish research about a low-income country without joint authorship from that country' (Horten 2013). Laudably, a number of journals, such as *Tropical Medicine & International Health,* do not publish without collaborative national involvement.

ICMJE authorship criteria applied to operational research

As a possible application of the current ICMJE guidelines that addresses OR issues, we suggest that authorship should include engagement of national programme managers and policy makers by validating the research question as relevant to a programme or to policy and granting permission to carry out the study where applicable; and critically reviewing the manuscript and signing off on the final version to be published. We believe these contributions are 'substantial', in the realm of OR, and should be recognised with authorship. The modifications of the definition of authorship adopted in the 1990s that moved towards 'contributorship' appear to support this proposal. Without engagement of national programme managers or policy makers, the main purpose of OR is lost and hence their contributions become as essential as that of other members of a research team such as statisticians or study implementers.

In conclusion, the strict application of the 'academic definition' of study authorship has not supported the inclusion and engagement of key players in OR. Authorship in OR confers a measure of accountability and responsibility that enhances programme effectiveness and policy change. We suggest that recognising the contributions of programme managers and policy makers to the OR process should be included in the application of the ICMJE guidelines and lead to authorship.

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