

The URM: Twenty-five Years Old

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No, URM is not the name of an extraterrestrial alien; it stands for “Uniform Requirements for Manuscripts Submitted to Biomedical Journals”. The URM was conceived in 1978 and born in 1979, 25 years ago. What began as a move toward standardization gradually became an influential set of guidelines that has had far-reaching effects on scientific journals. The document is frequently cited, is used as an authority by veteran and new editors and authors alike, and has been translated into many languages. Its beginnings were more humble.

The Early Years

The itch to bring to life what the URM was designed for—cutting work for authors and for journal staff—began in 1968 in Seattle. Augusta Litwer, a secretary to the eminent nephrologist Belding Scribner, grew tired of retyping his papers to change the format of references when a paper was rejected by one journal and needed to be submitted to another journal with different requirements. Gerald G Oppenheimer, chief medical librarian at the University of Washington Medical School, urged Litwer to write to the editors of *Annals of Internal Medicine* (AIM), the *Journal of the American Medical Association* (JAMA), and the *New England Journal of Medicine* (NEJM)¹⁻³ to ask why they could not have the same format for references. As a result, those editors and others met in 1968 and 1969 at the American Federation for Clinical Research meeting in Atlantic

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City. They finally agreed in 1970 to use the formats of Index Medicus specified by the National Library of Medicine (NLM). Eighteen journals signed on to this agreement; whether they all adhered to it is unrecorded. The agreement was announced in an editorial in AIM.⁴

The next step toward the URM came in the early 1970s when John F Murray, then editor of *American Review of Respiratory Disease*, was attending a meeting of editors at NLM. He raised the question of why journals could not agree on standards for manuscripts, particularly formats for bibliographic references; apparently, he was not aware of the Atlantic City agreement. In May 1976, AIM Editor Edward J Huth and *British Medical Journal* Editor Stephen Lock met at the third general assembly of the European Life Science Editors (now European Association of Science Editors) and discussed the possibility of an international agreement on reference formats. In 1978, John Murray, Therese Southgate of JAMA, and Huth organized a meeting of editors. Lock suggested a “neutral ground” for developing an international, trans-Atlantic agreement, so in 1978 the group met in Vancouver, British Columbia. The group called itself the International Steering Committee, a name that was later changed to the International Committee of Medical Journal Editors (ICMJE). Because of its original meeting place, however, the ICMJE has often been called “the Vancouver group”.

Reference Formats

The main topic at the 1978 meeting was formats for references, a topic that had been contentious for years. Huth urged adopting the American National Standards Institute (ANSI) standard.⁵ Several other editors disagreed. Eventually, the group decided that NLM would define the formats for references. The library based its recommended for-

Table 1: Versions of the Uniform Requirements for Manuscripts Submitted to Biomedical Journals (URM) and the Separate Statements

1979. URM First Edition⁷

Covered physical properties for manuscripts, including paper size; such components as title page, abstract, page numbers, tables, and illustrations; the content appropriate to sections (Introduction, Methods, and Results); acceptable abbreviations (units, statistical terms, substances, and journal titles); and the submission process. Formats for references were similar to those for Index Medicus, but the year of publication followed the journal title, and the closing pagination was shortened.

1982. URM Second Edition⁸

Included a statement on prior and duplicate publication; other changes were minor.

1987. Retraction of Research Findings

“Expressions of Concern” text was added in 1997.

1988. Editorial Freedom and Integrity

1988. URM Third Edition⁹

Further defined authorship criteria. Section on acknowledgments defined types of credit and permissions needed. Use of International System of Units (SI) recommended. Abbreviations list was eliminated. Section on statistics added and use of confidence intervals emphasized.

1989. Confidentiality

The Role of the Correspondence Column

mats on the ANSI standard, which itself was based on Anglo-American cataloging rules, providing a truly trans-Atlantic basis. A compromise was that cooperating journals would not be obliged to use the format of the submitted paper in their published articles. The URM was brought to the attention of Council of Biology Editors (CBE) members at their 1980 meeting and in *CBE Views*,⁶ the predecessor of CSE's *Science Editor*.

Focus on Ethical Issues

In its early years, the controversies surrounding the URM involved surprisingly heated arguments on reference formats (for example, the use of the "Harvard system" of citing references or the numerical system) and on other style issues, such as units of measure and abbreviations. By the middle 1980s, however, the ICMJE had clearly started to shift its focus to consideration of important ethical issues facing authors and editors, including listing people as authors when the work was done only by others, duplicate publication, and scientific fraud. The debates on these issues were intense, and the resulting consensus statements were considered so important that by 1987 the ICMJE decided to issue them as separate documents.

Later editions of the URM recommended only a few changes in style, whereas the separate statements began to be issued more frequently (Table 1). The change in emphasis is reflected in the subtitle of the latest version of the URM: "Writing and Editing for Biomedical Publication". The ethical issues that caused the most prolonged debates over the last 25 years, in our view, were authorship criteria, editorial freedom, duplicate publication, scientific fraud, and conflicts of interest, although some other subjects, such as advertising, were issues of contention at individual meetings.

Authorship Criteria

The first and second editions of the

URM^{7,8} mentioned authorship only briefly: "Acknowledge only persons who have made substantive contributions to the study." By the third edition,⁹ enough scandals had surfaced to lead the committee to define legitimate authorship in more detail. The key statement was, "Each author should have participated sufficiently in the work to take public responsibility for the content", a criterion based on the view of Richard Hewitt,¹⁴ director of the Section of Publications of Mayo Clinic. This key statement was followed by more-specific criteria. In 1991, a statement was issued to cover order of authorship, and a 1993 URM revision covered corporate (collective) authorship.

In the middle 1990s, the statement that had stood since 1988 was sharply challenged by several editors who advocated less stringent criteria to accommodate practices in research settings where not all authors could take public responsibility for the entire manuscript. Another group advocated the use of a "guarantor", one author who would take public responsibility for the paper. In 1996, a conference on authorship was held in Nottingham, and it was followed by a meeting of the ICMJE. Although that conference did not result in a radical change in the ICMJE authorship criteria, by 2000 the URM had been revised to state that not all authors need take responsibility for all the text, and the notion of a guarantor was introduced. In the most recent URM version, however, the authorship criteria have been returned to their earlier, stricter form. The pendulum of this debate continues to swing.

Editorial Freedom

Not surprisingly for a group of editors, the ICMJE's statement on editorial freedom endorses the editor's having complete control over the content of the journal. This statement was controversial because the group recognized that many editors, especially part-time

1991. Competing Manuscripts Based on the Same Study

Order of Authorship Guidelines for the Protection of Patients' Rights to Anonymity

1991. URM Fourth Edition;¹⁰ revised 1993,¹¹ 1994

Presentation of a paper at a meeting does not constitute prior publication, nor do press reports of the meeting. Order of authorship is a joint decision of the coauthors. Word limits for structured abstracts added. Number of authors cited in a reference reduced from seven to six (plus "et al"). Reference examples greatly expanded, from 14 to 34. List of participating journals deleted.

The 1993 revision noted that electronic publication was considered publication. Corporate authorship was subject to the same criteria as individual authorship. A section on manuscripts on diskette was added. The 1994 revision introduced the term *redundant publication* and described remedies. Secondary publication was described as acceptable under some conditions.

1992. Definition of a Peer-Reviewed Journal

1993. Medical Journals and the Popular Media

Conflicts of Interest (editorial comment, 2001)

1994. Advertising Supplements

1997. URM Fifth Edition;¹² revised 1999, 2000, 2001

Revisions included putting some of the separate statements in the URM. Issues to consider before submitting a manuscript included duplicate publication, secondary publication, and privacy. Some editors may choose to publish notes on what each author contributed; authors may wish to explain how the order of authors was determined; some journals limit the number of authors. Care should be taken when describing race or ethnicity, because the terms are ambiguous. Methods used in clinical trials and for review articles should be described. Claims of economic benefit should

URM continued

not be included without data. Written permission is needed for use of personal communications and in-press articles. Reference examples were expanded to include more legal material and electronic formats.

In 2000, revisions included stronger statements on preliminary release of information to the press and reporting guidelines for specific study designs, with a reference to the CONSORT guidelines. Authorship criteria were revised to include responsibility for “appropriate portions” of the text, not all of it; one or more authors, not necessarily all, should take responsibility for the work as a whole; acquisition of data is considered an authorship-worthy contribution; editors were urged to publish information about the contributions of each author. How and why experimental subjects were selected should be described, and stronger warnings about use of ethnic descriptors were added.

2000. Project-Specific Industry Support for Research

2001. Policies for Reporting Biomedical Journal Information on the Internet

2003. Current Version¹³

A heavily reorganized and edited version with emphasis on ethical and procedural issues. All separate statements have been incorporated into the document. Authorship criteria more strict. The statements on conflicts of interest were greatly expanded, especially those on industry funding. The section on formats for references is replaced with a hypertext link to www.nlm.nih.gov/bsd/uniform_requirements.html.

Notes:

Other journals subscribing to the URM published versions in English and other languages. They can be identified in PubMed: www.ncbi.nlm.nih.gov/entrez/query.fcgi.

Most of the separate statements were published in various journals shortly after they were approved. In 2003, all statements were put into the main document.

The last URM reprint distributed by the ICMJE was the 1997 edition. In 2000, the ICMJE decided to maintain the URM and all revisions on a central Web site (www.icmje.org) with notation of the latest update at the beginning of the document. This approach has produced a document to which the term edition no longer applies.

editors, do not have such control. The question was whether to accommodate this reality in a more general statement or to address the statement to what should be the case. The statement, released in 1988, initiated the “should” wording used in later statements on other matters—defining in a sense the ideal world. The statement on editorial freedom was later expanded by the World Association of Medical Editors (WAME), and the current version of the URM endorses the WAME statement—a new direction for the ICMJE, which had previously endorsed only its own statements. The editorial-freedom statement was famously invoked by several ICMJE member-editors who had public disputes with the owners of their journals.

Duplicate (Overlapping) Publication

The 1979 edition advised authors that journals following the URM guidelines did not wish to consider publishing papers already published elsewhere or under consideration by other journals. In 1988 and 1991, this position was clarified to permit duplicate publication in another language, and the necessary conditions were defined. By the middle 1990s, other types of duplication needed to be addressed, including differences in analysis and manuscripts derived from the same database. The rights and wrongs of each of these were debated, often hotly.

Retractions and Fraudulent or Suspicious Data

The ICMJE had a major influence on setting standard procedures for retracting papers from the literature, and editors worldwide are now more prone to insist on retraction or correction when due process has shown data to be questionable or fraudulent. Although the rightness of retraction was not debated, the extent to which editors should be or could be ethical watchdogs was controversial. Even today,

the literature contains articles that should have been retracted or were retracted late,¹⁵ and retracted articles are still cited. This is a matter that the current ICMJE group should revisit.

Conflicts of Interest

The growing number of authors, peer reviewers, and editors who have ties to industry and other commercial interests and the attendant risks of bias in reporting studies and judging reports of clinical trials led the ICMJE to issue a series of statements on how to deal with such conflicts. A major debate centers on whether journals should publish information on potential conflicts, just keep it on file, not consider an article when there is an appearance of conflict, or choose among various other options. The ICMJE felt so strongly about conflicts in industry-funded studies that in 2001 most ICMJE members took the unprecedented step of simultaneously publishing a committee-written editorial¹⁶ and in one case an individual commentary¹⁷ on the conflicts inherent in industry-funded studies.

Membership and Operations

In its 25-year history, the ICMJE has managed to elude a formal structure. The group is self-appointed and self-funded. It has no budget, no officers, no chair. Membership has included representatives of large and small journals, representatives who are not editors, and sometimes several people from the same journal. The host of a meeting has been free to invite guests. Some guests have stayed on as members; some have not. Debates about who should be at the table are an annual occurrence, but somehow consensus has triumphed, governed by the desire to keep the group small. For several years, the British and American journals seemed to dominate, so more editors of European journals were invited. With so many editors in one room, wordsmithing often dominated meetings and led, in

the view of some, to ponderous documents that reflected compromise rather than elegance. By 2001, the URM document had become so patched together that it required substantial revision before the current version could be published.

The secretariat services have been shared by the *BMJ* and *AIM* for much of the ICMJE's history, except for about 3 years when the *NEJM* took on the role. Kathy Case attended most of the meetings from 1979 through 2001 and would probably hold the endurance record if such records were kept.

We have chosen in this brief history to avoid attributing any initiative, after the founding years, to any one of the many editors and others involved in the ICMJE (Table 2). Such anonymity does not do justice to the unique character of the ICMJE meetings, where the heated debates reflect the fact that editors by nature have strong personalities and are autonomous. At the end of the day, we all sat down to dine together.

Influence of the URM

At its founding, the ICMJE was a small group of editors of major anglophone journals and some Scandinavian journals who were seeking to influence primarily the journals they represented. Yet by 1997, over 500 journal editors had notified the committee that they adhered to the URM in some form. The ICMJE no longer maintains the list of "journals in the agreement", so the number of journals adhering to the URM today is unknown.

In the last 10 years in particular, we believe the existence of the ICMJE and its documents has stimulated other groups to develop more-detailed standards, particularly those for the proper conduct of clinical trials. Likewise, the international congresses on peer review had their genesis among editors who were ICMJE members, as did such organizations as WAME. Whenever the ICMJE debates whether it should self-destruct, a new challenge invariably surfaces and justifies its continued usefulness.

The success of what began as a modest initiative in 1978 is due, in our judgment,

Table 2. Official Representatives to the ICMJE: 1978-2003

* Member of the founding group, the International Steering Committee.

+ Current representative.

American Review of Respiratory Disease
John F Murray*

Annals of Internal Medicine
Edward J Huth*
Suzanne W Fletcher
Robert H Fletcher
Frank Davidoff
Harold C Sox +

British Medical Journal
Stephen Lock*
Richard Smith

Canadian Medical Association Journal
Andrew Sherrington
Peter Morgan
Bruce P Squires
John Hoey+

Finnish Medical Journal
Ilkka Vartiovaara

The Lancet
Ian Munro*
Robin Fox
Gordon Reeves
Richard Horton+

Journal of the American Medical Association
William R Barclay*
Susan Crawford*
Robert W Mayo*
Therese Southgate*
George Lundberg
Richard Glass
Catherine D DeAngelis+

Medical Journal of Australia
Laurel Thomas
Alan Blum
Alister Brass
Kathleen King
Jill Forrest
Martin B Van Der Weyden+

Medical Journal of Croatia (and WAME representative)
Ana Marusic+

Nederlands Tijdschrift voor Geneeskunde (Dutch Medical Journal)
A John PM Overbeke+

New England Journal of Medicine
Arnold S Relman*
Drummond Rennie
Robert D Utiger
Jerome P Kassirer
Marcia Angell
Jeffrey M Drazen+

New York State Journal of Medicine
Alan Blum

New Zealand Medical Journal
Richard G Robinson
M Gary Nicholls
Frank Frizelle+

Tidsskrift for Den Norske Laegeforening (Norwegian Medical Journal)
Ole Harlem
Magne Nylenna
Charlotte Haug+

Ugeskrift for Laeger (Danish Medical Bulletin; Danish Medical Journal)
Povl Riis
Einar Krag
Liselotte Hojgaard
Torben Schroeder+

Western Journal of Medicine
Malcolm S M Watts
Linda Hawes Clever
Michael S Wilkes

National Library of Medicine (MEDLINE)
Clifford A Bachrach
Roy Rada
Lois Ann Colaianni
Sheldon Kotzin+

Princeton University
Patricia M Woolf

Montreal General Hospital
David A E Shephard*

URM *continued*

Centers for Disease Control
Frances H Porcher*

Mount Sinai School of Medicine
Library
Harriet R Meiss*

Secretariats

Jane Smith (*British Medical Journal*)
Kathleen Case (*Annals of Internal Medicine*)
Marcia Angell (*New England Journal of Medicine*)
Faith McClellan (*Annals of Internal Medicine*)
Christine Laine (*Annals of Internal Medicine*)+

Notes

The official representative of a journal is usually, but not always, the editor-in-chief. Representatives are listed under each journal or organization in the order in which the representative first participated. In the 1990s, several journals had two representatives. Persons who attended as guests or as temporary substitutes for the official representative are not listed.

to the convenience of editors' having authoritative guidance for matters they do not wish to confront alone, the practical

appeal to authors of a consistent manuscript standard, and the fact that a small group of decision-makers unhampered by bureaucracy can accomplish much. 🗣️

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Note: For convenience, this reference list reflects an Annals bias; other journals also published many of the URM documents.