

Special Report

UNIFORM REQUIREMENTS FOR MANUSCRIPTS SUBMITTED TO BIOMEDICAL JOURNALS

INTERNATIONAL COMMITTEE OF MEDICAL JOURNAL EDITORS*

A SMALL group of editors of general medical journals met informally in Vancouver, British Columbia, in 1978 to establish guidelines for the format of manuscripts submitted to their journals. The group became known as the Vancouver Group. Its requirements for manuscripts, including formats for bibliographic references developed by the National Library of Medicine, were first published in 1979. The Vancouver Group expanded and evolved into the International Committee of Medical Journal Editors (ICMJE), which meets annually; gradually it has broadened its concerns.

The committee has produced five editions of the "Uniform Requirements for Manuscripts Submitted to Biomedical Journals." Over the years, issues have arisen that go beyond manuscript preparation. Some of these issues are now covered in the "Uniform Requirements"; others are addressed in separate statements. Each statement has been published in a scientific journal.

The fifth edition (1997) is an effort to reorganize and reword the fourth edition to increase clarity and address concerns about rights, privacy, descriptions of methods, and other matters. The total content of "Uniform Requirements for Manuscripts Submitted to Biomedical Journals" may be reproduced for educational, not-for-profit purposes without regard for copyright; the committee encourages distribution of the material.

Journals that agree to use the "Uniform Requirements" (over 500 do so) are asked to cite the 1997 document in their instructions to authors.

Inquiries and comments should be sent to Kathleen Case at the ICMJE secretariat office, *Annals of Internal Medicine*, American College of Physicians, Independence Mall W., Sixth St. at Race, Philadelphia, PA 19106-1572, United States (Phone: 215-351-2661; Fax: 215-351-2644; e-mail: kathyc@acp.mhs.compuserve.com).

Publications represented on the ICMJE in 1996 were: the *Annals of Internal Medicine*, the *British Medical Journal*, the *Canadian Medical Association Journal*, the *Journal of the American Medical Association*, the *Lancet*, the *Medical Journal of Australia*, the *New England Journal of Medicine*, the *New Zea-*

land Medical Journal, the *Tidsskrift for den Norske Laegeforening*, the *Western Journal of Medicine*, and the *Index Medicus*.

It is important to emphasize what these requirements do and do not imply.

First, the "Uniform Requirements" are instructions to authors on how to prepare manuscripts, not to editors on publication style. (But many journals have drawn on them for elements of their publication styles.)

Second, if authors prepare their manuscripts in the style specified in these requirements, editors of the participating journals will not return the manuscripts for changes in style before considering them for publication. In the publishing process, however, the journals may alter accepted manuscripts to conform with details of their publication styles.

Third, authors sending manuscripts to a participating journal should not try to prepare them in accordance with the publication style of that journal but should follow the "Uniform Requirements."

Authors must also follow the instructions to authors in the journal as to what topics are suitable for that journal and the types of papers that may be submitted — for example, original articles, reviews, or case reports. In addition, the journal's instructions are likely to contain other requirements unique to that journal, such as the number of copies of a manuscript that are required, acceptable languages, length of articles, and approved abbreviations.

Participating journals are expected to state in their instructions to authors that their requirements are in accordance with the "Uniform Requirements for Manuscripts Submitted to Biomedical Journals" and to cite a published version.

*The members of the committee are Linda Clever (*Western Journal of Medicine*), Lois Ann Colaizzi (*Index Medicus*), Frank Davidoff (*Annals of Internal Medicine*), Richard Horton (*Lancet*), Jerome P. Kassirer and Marcia Angell (*New England Journal of Medicine*), George D. Lundberg and Richard Glass (*Journal of the American Medical Association*), Magne Nylenna (*Tidsskrift for den Norske Laegeforening*), Richard G. Robinson (*New Zealand Medical Journal*), Richard Smith (*British Medical Journal*), Bruce P. Squires (*Canadian Medical Association Journal*), and Martin Van Der Weyden (*Medical Journal of Australia*).

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ISSUES TO CONSIDER BEFORE SUBMITTING A MANUSCRIPT

Redundant or Duplicate Publication

Redundant or duplicate publication is publication of a paper that overlaps substantially with one already published.

Readers of primary source periodicals deserve to be able to trust that what they are reading is original unless there is a clear statement that the article is being republished by the choice of the author and editor. The bases of this position are international copyright laws, ethical conduct, and cost-effective use of resources.

Most journals do not wish to receive papers on work that has already been reported in large part in a published article or is contained in another paper that has been submitted or accepted for publication elsewhere, in print or in electronic media. This policy does not preclude the journal from considering a paper that has been rejected by another journal, or a complete report that follows publication of a preliminary report such as an abstract or poster displayed for colleagues at a professional meeting. Nor does it prevent journals from considering a paper that has been presented at a scientific meeting but not published in full or that is being considered for publication in a proceedings or similar format. Press reports of scheduled meetings will not usually be regarded as breaches of this rule, but such reports should not be amplified by additional data or copies of tables and illustrations.

When submitting a paper, an author should always make a full statement to the editor about all submissions and previous reports that might be regarded as redundant or duplicate publication of the same or very similar work. The author should alert the editor if the work includes subjects about whom a previous report has been published. Any such work should be referred to and referenced in the new paper. Copies of such material should be included with the submitted paper to help the editor decide how to deal with the matter.

If redundant or duplicate publication is attempted or occurs without such notification, authors should expect editorial action to be taken. At the least, prompt rejection of the submitted manuscript should be expected. If the editor was not aware of the violations and the article has already been published, then a notice of redundant or duplicate publication will probably be published with or without the author's explanation or approval.

Preliminary release, usually to public media, of scientific information described in a paper that has been accepted but not yet published violates the policies of many journals. In a few cases, and only by arrangement with the editor, preliminary release of data may be acceptable — for example, if there is a public health emergency.

Acceptable Secondary Publication

Secondary publication in the same or another language, especially in other countries, is justifiable, and can be beneficial, provided all of the following conditions are met:

- The authors have received approval from the editors of both journals; the editor concerned with secondary publication must have a photocopy, reprint, or manuscript of the primary version.
- The priority of the primary publication is respected

by a publication interval of at least one week (unless specifically negotiated otherwise by both editors).

- The paper for secondary publication is intended for a different group of readers; an abbreviated version could be sufficient.
- The secondary version reflects faithfully the data and interpretations of the primary version.
- A footnote on the title page of the secondary version informs readers, peers, and documenting agencies that the paper has been published in whole or in part and states the primary reference. A suitable footnote might read: "This article is based on a study first reported in the [title of journal, with full reference]."

Permission for such secondary publication should be free of charge.

Protection of Patients' Rights to Privacy

Patients have a right to privacy that should not be infringed without informed consent. Identifying information should not be published in written descriptions, photographs, and pedigrees unless the information is essential for scientific purposes and the patient (or parent or guardian) gives written informed consent for publication. Informed consent for this purpose requires that the patient be shown the manuscript to be published.

Identifying details should be omitted if they are not essential, but patient data should never be altered or falsified in an attempt to attain anonymity. Complete anonymity is difficult to achieve, and informed consent should be obtained if there is any doubt. For example, masking the eye region in photographs of patients is inadequate protection of anonymity.

The requirement for informed consent should be included in the journal's instructions for authors. When informed consent has been obtained, it should be indicated in the published article.

REQUIREMENTS FOR THE SUBMISSION OF MANUSCRIPTS

Summary of Technical Requirements

- Double-space all parts of manuscripts.
- Begin each section or component on a new page.
- Review the sequence: title page, abstract and key words, text, acknowledgments, references, tables (each on separate page), and legends.
- Illustrations (unmounted prints) should be no larger than 203×254 mm (8×10 in.).
- Include permission to reproduce previously published material or to use illustrations that may identify human subjects.
- Enclose transfer-of-copyright and other forms.
- Submit the required number of paper copies.
- Keep copies of everything submitted.

Preparation of the Manuscript

The text of observational and experimental articles is usually (but not necessarily) divided into sections with the headings Introduction, Methods, Results, and Discussion. Long articles may need subheadings within some sections (especially the Results and Discussion sections) to clarify their content. Other types of articles, such as case reports, reviews, and editorials, are likely to need other formats.

Authors should consult individual journals for further guidance.

Type or print out the manuscript on white bond paper, 216×279 mm (8½×11 in.), or ISO A4 (212×297 mm), with margins of at least 25 mm (1 in.). Type or print on only one side of the paper. Use double-spacing throughout, including for the title page, abstract, text, acknowledgments, references, individual tables, and legends. Number pages consecutively, beginning with the title page. Put the page number in the upper or lower right-hand corner of each page.

Manuscripts on Disks

For papers that are close to final acceptance, some journals require authors to provide a copy in electronic form (on a disk); they may accept a variety of word-processing formats or text (ASCII) files.

When submitting disks, authors should:

- Be certain to include a printout of the version of the article that is on the disk;
- Put only the latest version of the manuscript on the disk;
- Name the file clearly;
- Label the disk with the format of the file and the file name; and
- Provide information on the hardware and software used.

Authors should consult the journal's instructions to authors for acceptable formats, conventions for naming files, number of copies to be submitted, and other details.

Title Page

The title page should carry (a) the title of the article, which should be concise but informative; (b) the name by which each author is known, with his or her highest academic degree(s) and institutional affiliation; (c) the name of the department(s) and institution(s) to which the work should be attributed; (d) disclaimers, if any; (e) the name and address of the author responsible for correspondence about the manuscript; (f) the name and address of the author to whom requests for reprints should be addressed or a statement that reprints will not be available from the authors; (g) source(s) of support in the form of grants, equipment, drugs, or all of these; and (h) a short running head or foot line of no more than 40 characters (count letters and spaces) at the foot of the title page.

Authorship

All persons designated as authors should qualify for authorship. Each author should have participated sufficiently in the work to take public responsibility for the content.

Authorship credit should be based only on substantial contributions to (a) conception and design, or analysis and interpretation of data; and to (b) drafting the article or revising it critically for important intellectual content; and on (c) final approval of the version to be published. Conditions (a), (b), and (c) must all be met. Participation solely in the acquisition of funding or the collection of data does not justify authorship. General supervision of the research group is not sufficient for authorship. Any part of an article critical to its main conclusions must be the responsibility of at least one author.

Editors may ask authors to describe what each contributed; this information may be published.

Increasingly, multicenter trials are attributed to a corporate author. All members of the group who are named as authors, either in the authorship position below the title or in a footnote, should fully meet the above criteria for authorship. Group members who do not meet these criteria should be listed, with their permission, in the Acknowledgments or in an appendix (see Acknowledgments).

The order of authorship should be a joint decision of the coauthors. Because the order is assigned in different ways, its meaning cannot be inferred accurately unless it is stated by the authors. Authors may wish to explain the order of authorship in a footnote. In deciding on the order, authors should be aware that many journals limit the number of authors listed in the table of contents and that the National Library of Medicine lists in MEDLINE only the first 24 plus the last author when there are more than 25 authors.

Abstract and Key Words

The second page should carry an abstract (of no more than 150 words for unstructured abstracts or 250 words for structured abstracts). The abstract should state the purposes of the study or investigation, basic procedures (selection of study subjects or laboratory animals; observational and analytic methods), main findings (giving specific data and their statistical significance, if possible), and the principal conclusions. It should emphasize new and important aspects of the study or observations.

Below the abstract authors should provide, and identify as such, 3 to 10 key words or short phrases that will assist indexers in cross-indexing the article and may be published with the abstract. Terms from the medical subject headings (MeSH) list of *Index Medicus* should be used; if suitable MeSH terms are not yet available for recently introduced terms, present terms may be used.

Introduction

State the purpose of the article and summarize the rationale for the study or observation. Give only strictly pertinent references and do not include data or conclusions from the work being reported.

Methods

Describe your selection of the observational or experimental subjects (patients or laboratory animals, including controls) clearly. Identify the age, sex, and other important characteristics of the subjects. The definition and relevance of race and ethnicity are ambiguous. Authors should be particularly careful about using these categories.

Identify the methods, apparatus (give the manufacturer's name and address in parentheses), and procedures in sufficient detail to allow other workers to reproduce the results. Give references to established methods, including statistical methods (see below); provide references and brief descriptions for methods that have been published but are not well known; describe new or substantially modified methods, give reasons for using them, and evaluate their limitations. Identify precisely all drugs and chemicals used, including generic name(s), dose(s), and route(s) of administration.

Reports of randomized clinical trials should present information on all major study elements including the protocol (study population, interventions or exposures,

outcomes, and the rationale for statistical analysis), assignment of interventions (methods of randomization, concealment of allocation to treatment groups), and the method of masking (blinding).

Authors submitting review manuscripts should include a section describing the methods used for locating, selecting, extracting, and synthesizing data. These methods should also be summarized in the abstract.

Ethics

When reporting experiments on human subjects, indicate whether the procedures followed were in accordance with the ethical standards of the responsible committee on human experimentation (institutional or regional) and with the Helsinki Declaration of 1975, as revised in 1983. Do not use patients' names, initials, or hospital numbers, especially in illustrative material. When reporting experiments on animals, indicate whether the institution's or a national research council's guide for, or any national law on, the care and use of laboratory animals was followed.

Statistics

Describe statistical methods with enough detail to enable a knowledgeable reader with access to the original data to verify the reported results. When possible, quantify findings and present them with appropriate indicators of measurement error or uncertainty (such as confidence intervals). Avoid relying solely on statistical hypothesis testing, such as the use of P values, which fails to convey important quantitative information. Discuss the eligibility of experimental subjects. Give details about randomization. Describe the methods for and success of any blinding of observations. Report complications of treatment. Give numbers of observations. Report losses to observation (such as dropouts from a clinical trial). References for the design of the study and statistical methods should be to standard works when possible (with pages stated) rather than to papers in which the designs or methods were originally reported. Specify any general-use computer programs used.

Put a general description of methods in the Methods section. When data are summarized in the Results section, specify the statistical methods used to analyze them. Restrict tables and figures to those needed to explain the argument of the paper and to assess its support. Use graphs as an alternative to tables with many entries; do not duplicate data in graphs and tables. Avoid nontechnical uses of technical terms in statistics, such as "random" (which implies a randomizing device), "normal," "significant," "correlations," and "sample." Define statistical terms, abbreviations, and most symbols.

Results

Present your results in logical sequence in the text, tables, and illustrations. Do not repeat in the text all data in the tables or illustrations; emphasize or summarize only important observations.

Discussion

Emphasize the new and important aspects of the study and the conclusions that follow from them. Do not repeat

in detail data or other material given in the Introduction or the Results section. Include in the Discussion section the implications of the findings and their limitations, including implications for future research. Relate the observations to other relevant studies.

Link the conclusions with the goals of the study but avoid unqualified statements and conclusions not completely supported by the data. In particular, authors should avoid making statements on economic benefits and costs unless their manuscript includes economic data and analyses. Avoid claiming priority and alluding to work that has not been completed. State new hypotheses when warranted, but clearly label them as such. Recommendations, when appropriate, may be included.

Acknowledgments

At an appropriate place in the article (the title-page footnote or an appendix to the text; see the journal's requirements) one or more statements should specify (a) contributions that need acknowledging but do not justify authorship, such as general support by a departmental chair; (b) acknowledgments of technical help; (c) acknowledgments of financial and material support, which should specify the nature of the support; and (d) relationships that may pose a conflict of interest.

Persons who have contributed intellectually to the paper but whose contributions do not justify authorship may be named and their function or contribution described — for example, "scientific advisor," "critical review of study proposal," "data collection," or "participation in clinical trial." Such persons must have given their permission to be named. Authors are responsible for obtaining written permission from persons acknowledged by name, because readers may infer their endorsement of the data and conclusions.

Technical help should be acknowledged in a paragraph separate from those acknowledging other contributions.

References

References should be numbered consecutively in the order in which they are first mentioned in the text. Identify references in text, tables, and legends by Arabic numerals in parentheses. References cited only in tables or in legends to figures should be numbered in accordance with the sequence established by the first identification in the text of the particular table or figure.

Use the style of the examples below, which are based on the formats used by the U.S. National Library of Medicine (NLM) in *Index Medicus*. The titles of journals should be abbreviated according to the style used in *Index Medicus*. Consult the *List of Journals Indexed in Index Medicus*, published annually as a separate publication by the library and as a list in the January issue of *Index Medicus*. The list can also be obtained through the library's web site: <http://www.nlm.nih.gov>.

Avoid using abstracts as references. References to papers accepted but not yet published should be designated as "in press" or "forthcoming"; authors should obtain written permission to cite such papers as well as verification that they have been accepted for publication. Information from manuscripts submitted but not accepted should be cited in the text as "unpublished observations" with written permission from the source.

Avoid citing a "personal communication" unless it provides essential information not available from a public source, in which case the name of the person and date of communication should be cited in parentheses in the text. For scientific articles, authors should obtain written permission and confirmation of accuracy from the source of a personal communication.

The references must be verified by the author(s) against the original documents.

The "Uniform Requirements" style (the Vancouver style) is based largely on an ANSI standard style adapted by the NLM for its data bases. Notes have been added where Vancouver style differs from the style now used by NLM.

Articles in Journals

(1) *Standard journal article*

List the first six authors followed by et al. (Note: NLM now lists up to 25 authors; if there are more than 25 authors, NLM lists the first 24, then the last author, then et al.)

Vega KJ, Pina I, Krevsky B. Heart transplantation is associated with an increased risk for pancreaticobiliary disease. *Ann Intern Med* 1996 Jun 1;124(11):980-3.

As an option, if a journal carries continuous pagination throughout a volume (as many medical journals do) the month and issue number may be omitted. (Note: For consistency, the option is used throughout the examples in "Uniform Requirements." NLM does not use the option.)

Vega KJ, Pina I, Krevsky B. Heart transplantation is associated with an increased risk for pancreaticobiliary disease. *Ann Intern Med* 1996;124:980-3.

More than six authors:

Parkin DM, Clayton D, Black RJ, Masuyer E, Friedl HP, Ivanov E, et al. Childhood leukaemia in Europe after Chernobyl: 5 year follow-up. *Br J Cancer* 1996;73:1006-12.

(2) *Organization as author*

The Cardiac Society of Australia and New Zealand. Clinical exercise stress testing. Safety and performance guidelines. *Med J Aust* 1996;164:282-4.

(3) *No author given*

Cancer in South Africa [editorial]. *S Afr Med J* 1994;84:15.

(4) *Article not in English*

(Note: NLM translates the title to English, encloses the translation in square brackets, and adds an abbreviated language designator.)

Ryder TE, Haukeland EA, Solhaug JH. Bilateral infrapatellar seneruptur hos tidligere frisk kvinne. *Tidsskr Nor Laegeforen* 1996;116:41-2.

(5) *Volume with supplement*

Shen HM, Zhang QF. Risk assessment of nickel carcinogenicity and occupational lung cancer. *Environ Health Perspect* 1994;102 Suppl 1:275-82.

(6) *Issue with supplement*

Payne DK, Sullivan MD, Massie MJ. Women's psychological reactions to breast cancer. *Semin Oncol* 1996; 23(1 Suppl 2):89-97.

(7) *Volume with part*

Ozben T, Nacitarhan S, Tuncer N. Plasma and urine sialic acid in non-insulin dependent diabetes mellitus. *Ann Clin Biochem* 1995;32(Pt 3):303-6.

(8) *Issue with part*

Poole GH, Mills SM. One hundred consecutive cases of flap lacerations of the leg in ageing patients. *N Z Med J* 1994;107(986 Pt 1):377-8.

(9) *Issue with no volume*

Turan I, Wredmark T, Fellander-Tsai L. Arthroscopic ankle arthrodesis in rheumatoid arthritis. *Clin Orthop* 1995; (320):110-4.

(10) *No issue or volume*

Browell DA, Lennard TW. Immunologic status of the cancer patient and the effects of blood transfusion on antitumor responses. *Curr Opin Gen Surg* 1993:325-33.

(11) *Pagination in Roman numerals*

Fisher GA, Sikic BI. Drug resistance in clinical oncology and hematology. Introduction. *Hematol Oncol Clin North Am* 1995 Apr;9(2):xi-xii.

(12) *Type of article indicated as needed*

Enzensberger W, Fischer PA. Metronome in Parkinson's disease [letter]. *Lancet* 1996;347:1337.

Clement J, De Bock R. Hematological complications of hantavirus nephropathy (HVN) [abstract]. *Kidney Int* 1992;42:1285.

(13) *Article containing retraction*

Garey CE, Schwarzman AL, Rise ML, Seyfried TN. Ceruloplasmin gene defect associated with epilepsy in EL mice [retraction of Garey CE, Schwarzman AL, Rise ML, Seyfried TN. In: *Nat Genet* 1994;6:426-31]. *Nat Genet* 1995;11:104.

(14) *Article retracted*

Liou GI, Wang M, Matragoon S. Precocious IRBP gene expression during mouse development [retracted in *Invest Ophthalmol Vis Sci* 1994;35:3127]. *Invest Ophthalmol Vis Sci* 1994;35:1083-8.

(15) *Article with published erratum*

Hamlin JA, Kahn AM. Herniography in symptomatic patients following inguinal hernia repair [published erratum appears in *West J Med* 1995;162:278]. *West J Med* 1995;162:28-31.

Books and Other Monographs

(Note: Previous Vancouver style incorrectly had a comma rather than a semicolon between the publisher and the date.)

(16) *Personal author(s)*

Ringsven MK, Bond D. Gerontology and leadership skills for nurses. 2nd ed. Albany (NY): Delmar Publishers; 1996.

(17) *Editor(s), compiler(s) as author*

Norman IJ, Redfern SJ, editors. Mental health care for elderly people. New York: Churchill Livingstone; 1996.

(18) *Organization as author and publisher*

Institute of Medicine (US). Looking at the future of the Medicaid program. Washington (DC): The Institute; 1992.

- (19) *Chapter in a book*
(Note: Previous Vancouver style had a colon rather than a p before pagination.)
Phillips SJ, Whisnant JP. Hypertension and stroke. In: Laragh JH, Brenner BM, editors. Hypertension: pathophysiology, diagnosis, and management. 2nd ed. New York: Raven Press; 1995. p. 465-78.
- (20) *Conference proceedings*
Kimura J, Shibasaki H, editors. Recent advances in clinical neurophysiology. Proceedings of the 10th International Congress of EMG and Clinical Neurophysiology; 1995 Oct 15-19; Kyoto, Japan. Amsterdam: Elsevier; 1996.
- (21) *Conference paper*
Bengtsson S, Solheim BG. Enforcement of data protection, privacy and security in medical informatics. In: Lun KC, Degoulet P, Piemme TE, Rienhoff O, editors. MEDINFO 92. Proceedings of the 7th World Congress on Medical Informatics; 1992 Sep 6-10; Geneva, Switzerland. Amsterdam: North-Holland; 1992. p. 1561-5.
- (22) *Scientific or technical report*
Issued by funding/sponsoring agency:
Smith P, Golladay K. Payment for durable medical equipment billed during skilled nursing facility stays. Final report. Dallas (TX): Dept. of Health and Human Services (US), Office of Evaluation and Inspections; 1994 Oct. Report No.: HHSIGOEI69200860.
Issued by performing agency:
Field MJ, Tranquada RE, Feasley JC, editors. Health services research: work force and educational issues. Washington: National Academy Press; 1995. Contract No.: AHCP282942008. Sponsored by the Agency for Health Care Policy and Research.
- (23) *Dissertation*
Kaplan SJ. Post-hospital home health care: the elderly's access and utilization [dissertation]. St. Louis (MO): Washington Univ.; 1995.
- (24) *Patent*
Larsen CE, Trip R, Johnson CR, inventors; Novoste Corporation, assignee. Methods for procedures related to the electrophysiology of the heart. US patent 5,529,067. 1995 Jun 25.

Other Published Material

- (25) *Newspaper article*
Lee G. Hospitalizations tied to ozone pollution: study estimates 50,000 admissions annually. The Washington Post 1996 Jun 21;Sect. A:3 (col. 5).
- (26) *Audiovisual material*
HIV+/AIDS: the facts and the future [videocassette]. St. Louis (MO): Mosby-Year Book; 1995.
- (27) *Legal material*
Public Law:
Preventive Health Amendments of 1993, Pub. L. No. 103-183, 107 Stat. 2226 (Dec. 14, 1993).
Unenacted bill:
Medical Records Confidentiality Act of 1995, S. 1360, 104th Cong., 1st Sess. (1995).

Code of Federal Regulations:

Informed Consent, 42 C.F.R. Sect. 441.257 (1995).

Hearing:

Increased Drug Abuse: the Impact on the Nation's Emergency Rooms: Hearings before the Subcomm. on Human Resources and Intergovernmental Relations of the House Comm. on Government Operations, 103rd Cong., 1st Sess. (May 26, 1993).

(28) *Map*

North Carolina. Tuberculosis rates per 100,000 population, 1990 [demographic map]. Raleigh: North Carolina Dept. of Environment, Health, and Natural Resources, Div. of Epidemiology; 1991.

(29) *Book of the Bible*

The Holy Bible. King James version. Grand Rapids (MI): Zondervan Publishing House; 1995. Ruth 3:1-18.

(30) *Dictionary and similar references*

Stedman's medical dictionary. 26th ed. Baltimore: Williams & Wilkins; 1995. Apraxia; p. 119-20.

(31) *Classical material*

The Winter's Tale: act 5, scene 1, lines 13-16. The complete works of William Shakespeare. London: Rex; 1973.

Unpublished Material

(32) *In press*

(Note: NLM prefers "forthcoming" because not all items will be printed.)

Leshner AI. Molecular mechanisms of cocaine addiction. N Engl J Med. In press 1997.

Electronic Material

(33) *Journal article in electronic format*

Morse SS. Factors in the emergence of infectious diseases. Emerg Infect Dis [serial online] 1995 Jan-Mar [cited 1996 Jun 5];1(1):[24 screens]. Available from: URL: <http://www.cdc.gov/ncidod/EID/cid.htm>.

(34) *Monograph in electronic format*

CDI, clinical dermatology illustrated [monograph on CD-ROM]. Reeves JRT, Maibach H. CMEA Multimedia Group, producers. 2nd ed. Version 2.0. San Diego: CMEA; 1995.

(35) *Computer file*

Hemodynamics III: the ups and downs of hemodynamics [computer program]. Version 2.2. Orlando (FL): Computerized Educational Systems; 1993.

Tables

Type or print out each table with double spacing on a separate sheet of paper. Do not submit tables as photographs. Number tables consecutively in the order of their first citation in the text and supply a brief title for each. Give each column a short or abbreviated heading. Place explanatory matter in footnotes, not in the heading. Explain in footnotes all non-standard abbreviations that are used in each table. For footnotes use the following symbols, in this sequence: *, †, ‡, §, ||, ¶, **, ††, ‡‡, etc.

Identify statistical measures of variation such as standard deviation and standard error of the mean.

Do not use internal horizontal and vertical rules.

Be sure that each table is cited in the text.

If you use data from another published or unpublished source, obtain permission and acknowledge the source fully.

The use of too many tables in relation to the length of the text may produce difficulties in the layout of pages. Examine issues of the journal to which you plan to submit your paper to estimate how many tables can be used per 1000 words of text.

The editor, on accepting a paper, may recommend that additional tables containing important backup data too extensive to publish be deposited with an archival service, such as the National Auxiliary Publications Service in the United States, or made available by the authors. In that event an appropriate statement will be added to the text. Submit such tables for consideration with the paper.

Illustrations (Figures)

Submit the required number of complete sets of figures. Figures should be professionally drawn and photographed; freehand or typewritten lettering is unacceptable. Instead of original drawings, x-ray films, and other material, send sharp, glossy, black-and-white photographic prints, usually 127×178 mm (5×7 in.) but no larger than 203×254 mm (8×10 in.). Letters, numbers, and symbols should be clear and even throughout and of sufficient size that when reduced for publication each item will still be legible. Titles and detailed explanations belong in the legends for illustrations, not on the illustrations themselves.

Each figure should have a label pasted on its back indicating the number of the figure, author's name, and top of the figure. Do not write on the back of figures or scratch or mar them by using paper clips. Do not bend figures or mount them on cardboard.

Photomicrographs should have internal scale markers. Symbols, arrows, or letters used in photomicrographs should contrast with the background.

If photographs of people are used, either the subjects must not be identifiable or their pictures must be accompanied by written permission to use the photograph (see Protection of Patients' Rights to Privacy).

Figures should be numbered consecutively according to the order in which they have been first cited in the text. If a figure has been published, acknowledge the original source and submit written permission from the copyright holder to reproduce the material. Permission is required irrespective of authorship or publisher, except for documents in the public domain.

For illustrations in color, ascertain whether the journal requires color negatives, positive transparencies, or color prints. Accompanying drawings marked to indicate the region to be reproduced may be useful to the editor. Some journals publish illustrations in color only if the author pays the extra cost.

Legends for Illustrations

Type or print out legends for illustrations using double-spacing, starting on a separate page, with Arabic numerals

corresponding to the illustrations. When symbols, arrows, numbers, or letters are used to identify parts of the illustrations, identify and explain each one clearly in the legend. Explain the internal scale and identify the method of staining in photomicrographs.

Units of Measurement

Measurements of length, height, weight, and volume should be reported in metric units (meter, kilogram, or liter or their decimal multiples).

Temperatures should be given in degrees Celsius. Blood pressures should be given in millimeters of mercury.

All hematologic and clinical chemistry measurements should be reported in the metric system in terms of the International System of Units (SI). Editors may request that alternative or non-SI units be added by the authors before publication.

Abbreviations and Symbols

Use only standard abbreviations. Avoid abbreviations in the title and abstract. The full term for which an abbreviation stands should precede its first use in the text unless it is a standard unit of measurement.

Sending the Manuscript to the Journal

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