The Journal of Cardiothoracic and Vascular Anesthesia is primarily aimed at anesthesiologists who deal with patients undergoing **cardiac**, **thoracic** or **vascular surgical procedures**. JCVA features a multidisciplinary approach, with contributions from cardiac, vascular and thoracic surgeons, cardiologists, and other related specialists. Emphasis is placed on rapid publication of clinically relevant material. The journal is international in scope and encourages innovative **submissions** from all continents.

**Benefits to authors**
We also provide many author benefits, such as free PDFs, a liberal copyright policy, special discounts on Elsevier publications and much more. Please click here for more information on our **author services**.

Please see our **Guide for Authors** for information on article submission. If you require any further information or help, please visit our **Support Center**

**IMPACT FACTOR**

2017: 1.574 © Clarivate Analytics Journal Citation Reports 2018

**ABSTRACTING AND INDEXING**

Scopus

**EDITORIAL BOARD**

**Editor-in-Chief**

J. A. Kaplan, MD, Professor of Anesthesiology, University of California at San Diego, La Jolla, California, USA

Dean Emeritus, School of Medicine; Former Chancellor, Health Sciences Center; Professor of Anesthesiology, University of Louisville, Louisville, KY

**Associate Editor-in-Chief**

J. G. T. Augoustides, University of Pennsylvania School of Medicine, Philadelphia, Pennsylvania, USA
Associate Editors

G. R. Manecke, Jr, MD, Cardiac Anesthesia, Professor and Chair of Anesthesiology, University of California, San Diego, California, USA

P. D. Slinger, MD, Thoracic Anesthesia, Professor of Anaesthesia, The University of Toronto, The Toronto Hospital, Toronto, ON, Canada

B. S. Rasmussen, MD, Vascular Anesthesia & Critical Care Medicine, EACTA Scientific Secretary, EACTA President-Elect, Department of Cardiothoracic Vascular Anesthesia, Aalborg Hospital, Aalborg, Denmark

F. Mahmood, MD, Beth Israel Deaconess Medical Center, Boston, Massachusetts, USA

A. J. C. Mittnacht, MD, Mount Sinai School of Medicine, New York, New York, USA

H. Ramakrishna, MD, Cardiac Anesthesia, Mayo Clinic College of Medicine, Phoenix, Arizona, USA

T. Maus, University of California at San Diego (UCSD), La Jolla, California, USA

Section Editors

G. Landoni, MD, Review Articles, Associate Professor of Anesthesiology and Critical Care, Vita-Salute University of Milano, IRCCS San Raffaele Hospital, Milan, Italy

G. R. Manecke, Jr, MD, Emerging Technology Reviews, Professor and Chair of Anesthesiology, University of California, San Diego, CA

M. A. Chaney, MD, Case Conference, Professor, Director of Cardiac Anesthesia, Department of Anesthesiology, Mount Sinai School of Medicine, New York, NY

G. Silvay, MD, PhD, International Affairs and Cardiac Calendar, Professor of Anesthesiology, Department of Anesthesiology, Mount Sinai School of Medicine, New York, NC

A. Shander, MD, FCCM, FCCP, Supplements, Chief, Anesthesia & Critical Care Medicine, Englewood Hospital and Medical Center, Englewood, New Jersey

F. Guarracino, MD, Supplements, EACTA Chair, Annual Congress Director, Cardiothoracic Anaesthesia and ICU, Azienda Ospedaliera Universitaria Pisana, Pisa, Italy

M. Swaminathan, MD, MMCI, FASE, FAHA, Vice-President, American Society of Echocardiography, Professor of Anesthesiology, Clinical Director, Cardiothoracic Anesthesiology & Critical Care, Duke University Health System, Durham, NC

D. A. Banks, MD, Cardiac Anesthesia Fellow's Education, Director, Cardiac Anesthesia, Associate Professor, Anesthesiology, University of California, San Diego, CA

Social Media Editor

J. Huang, MD, PhD, FASA, FASE, University of Louisville, Louisville, Kentucky, USA

Editorial Assistants

N.G. Kaplan, Encinitas, CA

D. W. Alkofer, PhD, Louisville, KY

K. Lander, San Diego, CA

Editors

S. Akhtar, MD, New Haven, CT

O. Alfieri, MD, Milan, Italy

R.P. Alston, MD, ChB, MD, FRCA, FFPFRCA, Edinburgh, Scotland, UK

M. Andritsos, MD, Columbus, OH

U. Aypar, MD, Ankara, Turkey

D. Bainbridge, MD, FRCP, London, Canada

S. J. Barker, MD, PhD, Tucson, AZ

E. Bennett-Guerrero, MB, MBChB, MBA, New York, New York, USA

G. Biondi Zoccai, MD, Latina, Italy

D. Bolliger, MD, Basel, Switzerland

T. Bowdle, MD, Seattle, WA

K. Byrne, Hamilton, New Zealand

J. H. Campos, MD, Iowa City, IA

M. Cannesson, MD, PhD, Orange, CA

A. Carpentier, MD, PhD, New York, NY

M. Chakravarthy, MD, Karnataka, India

D.C.H. Cheng, MD, MSc, FRCP, London, ON, Canada

A. Cheung, MD, Palo Alto, CA

J. Chikwe, MD, New York, NY
E. Mossad, MD, Houston, TX
G. S. Murphy, MD, Evanston, IL
P. K. Neema, MD, Raipur, India
P. J. Neuburger, MD, New York, NY
S. Neustein, MD, New York, NY
S. Nhieu, Santa Clara, California, USA
M. Nomura, MD, Tokyo, Japan
E. A. Ochroch, MD, MSCE, Philadelphia, PA
L. Pasin, BMed & Surg, Milan, Italy
P. A. Patel, MD, Philadelphia, PA
A. Pedoto, MD, New York, NY
J. I. T. Poelaert, MD, PhD, FCCP, Brussels, Belgium
W. Popescu, MD, New Haven, CT
S. L. Rao, MBBS, MS, Hershey, PA
K. Rehfelt, MD, Rochester, MN
D. L. Reich, MD, New York, NY
A. Rhee, MD, New York, NY
J. B. Riley, MHPA, CCP, Rochester, MN
G. W. Roach, MD, San Francisco, CA
M. Roth, MD, San Diego, CA, USA
R. Royster, MD, Winston-Salem, NC
D. Royston, MB, FRCA, Harfield, Middlesex, UK
M. Schermerhorn, MD, Boston, MA
R. B. Schonberger, MD, MHS, New Haven, CT
P. M. Schulman, MD, Portland, OR
S. Shahul, MD, MPH, Chicago, IL, USA
T. D. Shear, MD, Evanston, IL
S. K. Shillcut, MD, FASE, Omaha, NE
L. Shore-Lesserson, MD, Long Island, NY
A. C. Shukla, MBBS, FRCA, Boston, MA
M. Stone, MD, New York, NY
E. A. Sullivan, MD, Pittsburgh, PA
J. Swanevelder, MD, Cape Town, South Africa
A. Székely, MSc, PhD, DEAA, Budapest, Hungary
K. A. Tanaka, MD, MSc, Baltimore, MD
K. Taylor, B.Med, BA, M.Med, FANZA, Toronto, ON, Canada
D. K. Tempe, MD, FRCA, New Delhi, India
M. Townsley, MD, Birmingham, AL, USA
Y. Tshomba, Milan, Italy
E. A. Valentine, MD, Philadelphia, PA
A. Vuylsteke, BSc, MD, DESAR, FRCA, FFICM, Cambridge, UK
C. E. Wagner, MD, Nashville, TN
J. A. Wahr, MD, Minnetonka, MN
M. H. Wall, MB, FCCM, St. Louis, MO
A. W. Wallace, MD, PhD, San Francisco, CA
W. Wang, MD, PhD, Beijing, China
M. M. Weiner, MD, New York, NY
S. J. Weiss, MD, PhD, Philadelphia, PA
N. S. Weitzel, MD, Aurora, CO
R. S. Wilson, MD, New York, NY
K. Yoshitani, MD, Suita, Japan
GUIDE FOR AUTHORS

Publication
The Journal of Cardiothoracic and Vascular Anesthesia will consider for publication suitable articles on all topics related to anesthesia for cardiac, vascular, and thoracic surgery. The scope of this Journal is broad and seeks to consolidate all material pertinent to cardiothoracic anesthesiology, including topics from critical care medicine, pharmacology, monitoring, perfusion technology, internal medicine, surgery, and transplantation.

Articles, editorials, letters to the Editor, and other text material in the Journal of Cardiothoracic and Vascular Anesthesia represent the opinion of the authors and do not necessarily reflect the opinion of the Editor, Editorial Board, or Publisher. The Editors and Publisher deny any responsibility or liability for statements and opinions expressed by the authors. Neither the Editor nor the Publisher guarantees, warrants, or endorses any product or service advertised in this publication, nor do they guarantee any claim made by the manufacturer of such product or service.

Authors must send their submissions here.

Authors submitting a manuscript do so with the understanding that if it is accepted for publication, copyright of the article, including the right to reproduce the article in all forms and media, shall be assigned exclusively to the Publisher. Following acceptance for publication, in order to comply with United States copyright law and the requirements of the insurance carrier, the Publisher will require authors of accepted manuscripts and letters to sign a copyright release form.

Article Types
For examples of all article types, see any recent issue of the Journal.

The following article types may be submitted: Research Papers, Case Reports, Review Articles (Regular Review Articles, Emerging Technology Reviews, and Expert Reviews), Feature Articles (E-Challenges & Clinical Decisions, Case Conferences, Pro and Con Articles, Diagnostic Dilemmas, Special Articles [those not easily suited to another type], Editorials, and Letters to the Editor). Potential authors are invited to e-mail the Editorial Office to establish a consultation with an Editor in regard to interest in a proposed submission.

Letters to the Editor will be published electronic-only.

Research Papers
This article type requires 4 documents: Cover Letter, Title Page, Structured Abstract, and Manuscript. The Manuscript document must have 4 identified sections: Introduction, Methods, Results, and Discussion. A description of the statistics used in the Methods section is expected. 3-6 Keywords should be submitted with the manuscript. Optional items are Tables, Figures, Video/Sound Clips, and Supplementary Materials. Supplementary materials will be published electronic-only.

Review Articles
All Review Articles require the same 4 documents as Research Papers. The Cover Letter and Title Page should clearly indicate when a submission is an Emerging Technology Review, an invited Review Article, or an invited Expert Review. The first paragraph of the Manuscript document should introduce the essential points to be discussed, and the concluding paragraph should express future objectives. 3-6 Keywords should also be submitted. The articles should include headings for major segments of the text. The Manuscript document is to be double-spaced throughout. The Abstract for a Review Article will be published in paper and online; it should summarize the main text in no more than 250 words, with no headings or references. A separate document must be included for each Table, Figure, or Video/Audio presentation.

Case Reports
This article type requires 4 items: Cover Letter, Title Page, 1-paragraph Abstract, and Manuscript. The Manuscript document should begin with a short introduction to the clinical context of the case and its significance and follow with 2 identified sections: Case Report and Discussion. A brief summary should complete the Discussion. In most situations the introduction and final summary can be combined to form the Abstract, which will not be published. Please ensure 3-6 keywords are included in the paper. There should be no reference to case report in the title i.e. "A Case Report - ".

www.elsevier.com/locate/jcva
Case Conferences
These articles are handled by a Section Editor for Case Conferences. Some offline communication between authors and editors may be required. There are 3 parts to each Case Conference: (1) case presentation, (2) case discussion, and (3) commentary(ies). The case presentation and discussion will originate from 1 institution. Their authors are invited to solicit expert commentators not involved in the case. The case presentation and case discussion should be set up as a case report. The discussion should focus on the perioperative management of the patient. The commentaries provide input from related specialties and/or other viewpoint(s) on anesthetic, surgical, or intensive care management of the case. A commentary should be submitted with its author's full name, degrees, affiliation, and e-mail address on its first page. The commentators may be from any appropriate medical or medically-related discipline within the same or another institution. The Journal reserves the right to solicit commentaries appropriate to a submitted Case Conference and to make final determination of commentators. Figures, tables, and references from all contributors are desirable to expand the teaching value of the case. Follow the guidelines for preparing figures, video clips, tables, and references. The final version of the Case Conference will have its references compiled into a single consecutively-numbered list. 3-6 keywords should also be submitted.

Diagnostic Dilemmas
This cogent article type is in two parts. First, it presents a case with difficult diagnosis, usually resulting from preliminary graphic evidence. The reader is then invited to project a tentative diagnosis. In the second part, the results of further investigation are provided to resolve the dilemma. High quality figures and/or video clips are vital for these submissions. 3-6 keywords should also be submitted.

Letters to the Editor
These should be double-spaced, brief, and concisely focused. They should have a title. Cited works must have full, accurate references. A Cover Letter and a Title Page are needed separate from the letter. Figures, video clips, and tables may be included. Letters to the Editor will be published online only.

E-Challenges
This article type requires the following elements to be included: 1) Title page 2) Brief non-structured abstract: 200 word max. 3) 3-6 Key Words 4) Background 5) Clinical Case 6) E-Challenge 7) Clinical Course 8) Discussion. The total length should be 1500-2500 words with references.

Submission Checklist
You can use this list to carry out a final check of your submission before you send it to the journal for review. Please check the relevant section in this Guide for Authors for more details.

Ensure that the following items are present:

One author has been identified on the Title Page as the Corresponding Author with contact details: E-mail address Full postal address All authors should be included on the title page in the correct order with their affiliations and degrees Note that only 1 author can be listed as the Corresponding Author and will be responsible for all communications among the authors and the Journal.

All necessary files have been uploaded:

Cover Letter (all articles): Addressed to the Editor in Chief Statement that the authors agree with and take responsibility for the data presented List of authors as if for signature Discussion of the article is not expected; save it for the Abstract or Manuscript. Structured Abstract (Research Papers only): Seven paragraphed sections, double-line spaced Key Words Title Page (all articles): Title of article; full names of authors in preferred order; separate list of authors by name, title, and institution; notice of Corresponding Author with full contact information including e-mail address; statements of funding, declarations of interest, and acknowledgements. The authors’ names, institutions or geographical locations should not appear in the Manuscript document. Manuscript (all material except Tables, Figures, Video Clips): Double-spacing throughout text Identified major text sections Proper numbering of pages, text references for tables, figures, video clips, and supplementary materials Numerical list of References List of Figure and Video Clip Legends (numbers, titles, necessary notes) Supplemental Materials Tables Figures Video Clips
Further considerations Manuscript and Title Page have been 'spell checked' and 'grammar checked.' All references mentioned in the References list are cited in the text, and vice versa. Permission has been obtained for use of copyrighted material (including the Internet), except material owned by the Publisher. Use generic drug names throughout. Brand names may be inserted following the generic names. The name and city/state/country location of the drug or technology manufacturer must be included after the name of the product. The author(s) or the name or geographical location of an author’s institution should not be identified in the text, header, or footer in the submission except on the Title Page and the Cover Letter. Journal policies detailed in this guide have been considered.

For further information, visit our Support Center.

BEFORE YOU BEGIN

Ethics in publishing
Please see our information pages on Ethics in publishing and Ethical guidelines for journal publication.

Studies in humans and animals
If the work involves the use of human subjects, the author should ensure that the work described has been carried out in accordance with The Code of Ethics of the World Medical Association (Declaration of Helsinki) for experiments involving humans. The manuscript should be in line with the Recommendations for the Conduct, Reporting, Editing and Publication of Scholarly Work in Medical Journals and aim for the inclusion of representative human populations (sex, age and ethnicity) as per those recommendations. The terms sex and gender should be used correctly.

Authors should include a statement in the manuscript that informed consent was obtained for experimentation with human subjects. The privacy rights of human subjects must always be observed.

All animal experiments should comply with the ARRIVE guidelines and should be carried out in accordance with the U.K. Animals (Scientific Procedures) Act, 1986 and associated guidelines, EU Directive 2010/63/EU for animal experiments, or the National Institutes of Health guide for the care and use of Laboratory animals (NIH Publications No. 8023, revised 1978) and the authors should clearly indicate in the manuscript that such guidelines have been followed. The sex of animals must be indicated, and where appropriate, the influence (or association) of sex on the results of the study.

Declaration of interest
All authors must disclose any financial and personal relationships with other people or organizations that could inappropriately influence (bias) their work. Examples of potential competing interests include employment, consultancies, stock ownership, honoraria, paid expert testimony, patent applications/registrations, and grants or other funding. Authors must disclose any interests in two places: 1. A summary declaration of interest statement in the title page file (if double-blind) or the manuscript file (if single-blind). If there are no interests to declare then please state this: 'Declarations of interest: none'. This summary statement will be ultimately published if the article is accepted. 2. Detailed disclosures as part of a separate Declaration of Interest form, which forms part of the journal’s official records. It is important for potential interests to be declared in both places and that the information matches. More information.

Submission declaration and verification
Submission of an article implies that the work described has not been published previously (except in the form of an abstract, a published lecture or academic thesis, see 'Multiple, redundant or concurrent publication' for more information), that it is not under consideration for publication elsewhere, that its publication is approved by all authors and tacitly or explicitly by the responsible authorities where the work was carried out, and that, if accepted, it will not be published elsewhere in the same form, in English or in any other language, including electronically without the written consent of the copyright-holder. To verify originality, your article may be checked by the originality detection service Crossref Similarity Check.

Preprints
Please note that preprints can be shared anywhere at any time, in line with Elsevier’s sharing policy. Sharing your preprints e.g. on a preprint server will not count as prior publication (see 'Multiple, redundant or concurrent publication' for more information).
Use of inclusive language
Inclusive language acknowledges diversity, conveys respect to all people, is sensitive to differences, and promotes equal opportunities. Articles should make no assumptions about the beliefs or commitments of any reader, should contain nothing which might imply that one individual is superior to another on the grounds of race, sex, culture or any other characteristic, and should use inclusive language throughout. Authors should ensure that writing is free from bias, for instance by using 'he or she', 'his/her' instead of 'he' or 'his', and by making use of job titles that are free of stereotyping (e.g. ‘chairperson’ instead of ‘chairman' and 'flight attendant' instead of 'stewardess').

Copyright
Upon acceptance of an article, authors will be asked to complete a 'Journal Publishing Agreement' (see more information on this). An e-mail will be sent to the corresponding author confirming receipt of the manuscript together with a 'Journal Publishing Agreement' form or a link to the online version of this agreement.

Subscribers may reproduce tables of contents or prepare lists of articles including abstracts for internal circulation within their institutions. Permission of the Publisher is required for resale or distribution outside the institution and for all other derivative works, including compilations and translations. If excerpts from other copyrighted works are included, the author(s) must obtain written permission from the copyright owners and credit the source(s) in the article. Elsevier has preprinted forms for use by authors in these cases.

For gold open access articles: Upon acceptance of an article, authors will be asked to complete an 'Exclusive License Agreement' (more information). Permitted third party reuse of gold open access articles is determined by the author's choice of user license.

Author rights
As an author you (or your employer or institution) have certain rights to reuse your work. More information.

Elsevier supports responsible sharing
Find out how you can share your research published in Elsevier journals.

Role of the funding source
You are requested to identify who provided financial support for the conduct of the research and/or preparation of the article and to briefly describe the role of the sponsor(s), if any, in study design; in the collection, analysis and interpretation of data; in the writing of the report; and in the decision to submit the article for publication. If the funding source(s) had no such involvement then this should be stated.

Funding body agreements and policies
Elsevier has established a number of agreements with funding bodies which allow authors to comply with their funder's open access policies. Some funding bodies will reimburse the author for the gold open access publication fee. Details of existing agreements are available online.

After acceptance, open access papers will be published under a noncommercial license. For authors requiring a commercial CC BY license, you can apply after your manuscript is accepted for publication.

Open access
This journal offers authors a choice in publishing their research:

Subscription
• Articles are made available to subscribers as well as developing countries and patient groups through our universal access programs.
• No open access publication fee payable by authors.
• The Author is entitled to post the accepted manuscript in their institution's repository and make this public after an embargo period (known as green Open Access). The published journal article cannot be shared publicly, for example on ResearchGate or Academia.edu, to ensure the sustainability of peer-reviewed research in journal publications. The embargo period for this journal can be found below.

Gold open access
• Articles are freely available to both subscribers and the wider public with permitted reuse.
• A gold open access publication fee is payable by authors or on their behalf, e.g. by their research funder or institution.
Regardless of how you choose to publish your article, the journal will apply the same peer review criteria and acceptance standards.

For gold open access articles, permitted third party (re)use is defined by the following Creative Commons user licenses:

**Creative Commons Attribution-NonCommercial-NoDerivs (CC BY-NC-ND)**
For non-commercial purposes, let others distribute and copy the article, and to include in a collective work (such as an anthology), as long as they credit the author(s) and provided they do not alter or modify the article.

The gold open access publication fee for this journal is **USD 1800**, excluding taxes. Learn more about Elsevier's pricing policy: [https://www.elsevier.com/openaccesspricing](https://www.elsevier.com/openaccesspricing).

**Green open access**
Authors can share their research in a variety of different ways and Elsevier has a number of green open access options available. We recommend authors see our open access page for further information. Authors can also self-archive their manuscripts immediately and enable public access from their institution's repository after an embargo period. This is the version that has been accepted for publication and which typically includes author-incorporated changes suggested during submission, peer review and in editor-author communications. Embargo period: For subscription articles, an appropriate amount of time is needed for journals to deliver value to subscribing customers before an article becomes freely available to the public. This is the embargo period and it begins from the date the article is formally published online in its final and fully citable form. [Find out more.](https://www.elsevier.com/openaccesspage)

This journal has an embargo period of 12 months.

**Elsevier Researcher Academy**
Researcher Academy is a free e-learning platform designed to support early and mid-career researchers throughout their research journey. The "Learn" environment at Researcher Academy offers several interactive modules, webinars, downloadable guides and resources to guide you through the process of writing for research and going through peer review. Feel free to use these free resources to improve your submission and navigate the publication process with ease.

**Language (usage and editing services)**
Please write your text in good English (American English is strongly preferred). Authors who feel their English language manuscript may require editing to eliminate possible grammatical or spelling errors and to conform to correct scientific English may wish to use the English Language Editing service available from Elsevier's WebShop ([http://webshop.elsevier.com/languageediting/](http://webshop.elsevier.com/languageediting/)) or visit our customer support site ([https://service.elsevier.com](https://service.elsevier.com)) for more information.

**Informed consent and patient details**
Studies on patients or volunteers require ethics committee approval and informed consent, which should be documented in the paper. Appropriate consents, permissions and releases must be obtained where an author wishes to include case details or other personal information or images of patients and any other individuals in an Elsevier publication. Written consents must be retained by the author but copies should not be provided to the journal. Only if specifically requested by the journal in exceptional circumstances (for example if a legal issue arises) the author must provide copies of the consents or evidence that such consents have been obtained. For more information, please review the Elsevier Policy on the Use of Images or Personal Information of Patients or other Individuals. Unless you have written permission from the patient (or, where applicable, the next of kin), the personal details of any patient included in any part of the article and in any supplementary materials (including all illustrations and videos) must be removed before submission.

**Submission**
All text files (Abstract, Manuscript, Tables, Supplementary text) must be presented in Word or a fully-compatible program—NOT .pdf. Most figures can also be submitted in Word.

Our online submission system guides you stepwise through the process of entering your article details and uploading your files. The system converts your article files to a single PDF file used in the peer-review process.

**Please Submit your article here.**
The Editorial Office will send by e-mail to the Corresponding Author all communications related to the status of a submission, including the final decision and the scheduled date of publication.

Further inquiries and information may be directed to the Editorial Office at: dwalk@louisville.edu.

Manuscripts will be reviewed by the Editor in Chief, Associate and Section Editors, members of the Editorial Board, and appropriate guest reviewers. Acceptance of a paper for publication is based on the originality and quality of the observation or investigation, and the clarity of the presentation. Clinically relevant material is especially desirable. Good English usage is an essential prerequisite for consideration of the paper.

In all cases the authors must accept the responsibility of conforming to the instructions in this guide. Submissions must conform fully before reviewers will be assigned. Substantial non-conformity may result in outright rejection. If a submitted article is accepted for publication, editorial revisions may be made to aid clarity and understanding without altering the meaning.

PREPARATION

Use of word processing software
Text documents (Abstract, Title Page, and Manuscript) need to be double-spaced throughout, preferably in 11-12 point type. It is important that the file be saved in the native format of the word processor used. The text must be in single-column format. Keep the layout of the text as simple as possible. Most formatting codes will be removed and replaced on processing the article. In particular, do not use the word processor's options to justify text or to hyphenate words. However, do use bold face, italics, subscripts, superscripts etc. When preparing tables, if you are using a table grid, use only one grid for each individual table and not a grid for each row. If no grid is used, use tabs, not spaces, to align columns. The electronic text should be prepared in a way very similar to that of conventional manuscripts (see also the Guide to Publishing with Elsevier). Note that source files of figures, tables and text graphics will be required whether or not you embed your figures in the text. See also the section on Electronic Artwork.

To avoid unnecessary errors you are strongly advised to use the 'spell-check' and 'grammar-check' functions of your word processor.

Article structure
Cover Letter

A cover letter should be supplied addressed to the Editor in Chief. The letter must include at the end a list of all authors as if for signature. Cover letters scanned from official letterhead with all signatures are strongly encouraged. The cover letter must state that the authors agree with and are responsible for the data presented.

Title Page

Title. Concise and informative. Titles are often used in information-retrieval systems. Avoid abbreviations and formulae where possible. Author names and affiliations. Where the family name may be ambiguous (eg, a double name), please indicate this clearly. Family names need to be entered as the last part of the name (Western style). Present the authors' affiliation addresses (where the actual work was done) below the names. Indicate all affiliations with a lower-case superscript letter immediately after the author's name and in front of the appropriate address. Provide the full postal address of each affiliation, including the country name and, if available, the e-mail address of each author. Corresponding author. Clearly indicate who will handle correspondence at all stages of reviewing, publication, and post-publication. Ensure that phone numbers (with country and area code) are provided in addition to the e-mail address and the complete postal address. Contact details must be kept up to date by the corresponding author. Present/permanent address. If an author has moved since the work described in the article was done, or was visiting at the time, a 'Present address' (or 'Permanent address') may be indicated as a footnote to that author's name. The address at which the author actually did the work must be retained as the main, affiliation address. Conflict of Interest. Authors must disclose financial and personal relationships with people or organizations that could inappropriately influence their work. Examples of these relationships include employment, consultancies, stock ownership, honoraria, paid expert testimony, patents, and funding. A declaration of interest should be outlined in the title page of the submitted manuscript. If there are no interests to declare, then please state as follows: 'Declarations of interest: none'.
Abstract

The **Structured Abstract** for a Research Paper is limited to 250 words (including section headings). The abstract should consist of 7 paragraphs:

**Objective(s):** What scientific question was the study designed to answer?

**Design:** A phrase describing whether a study is prospective, randomized, blinded, etc.

**Setting:** Type of hospital or laboratory; university or community setting; single or multi-institutional.

**Participants:** Patients, volunteers, animals.

**Interventions:** What interventions were done to the participants?

**Measurements and Main Results:** How was the outcome of the intervention(s) assessed? What were the major finding(s) of interest?

**Conclusions:** What conclusion(s) may be reasonably drawn from the results of the study?

Following these 7 paragraphs, repeat the list of key words that are also uploaded into the Key Word file. No references or abbreviations should be used in the abstract.

**Key Words**

Immediately after the abstract, provide a maximum of 6 keywords, using American spelling and avoiding general and plural terms and multiple concepts (avoid, for example, 'and', 'of'). Be sparing with abbreviations: only abbreviations firmly established in the field may be eligible. These keywords will be used for indexing purposes.

**Formatting of funding sources**

List funding sources in this standard way to facilitate compliance to funder's requirements:

Funding: This work was supported by the National Institutes of Health [grant numbers xxxx, yyyy]; the Bill & Melinda Gates Foundation, Seattle, WA [grant number zzzz]; and the United States Institutes of Peace [grant number aaaa].

It is not necessary to include detailed descriptions on the program or type of grants and awards. When funding is from a block grant or other resources available to a university, college, or other research institution, submit the name of the institute or organization that provided the funding.

If no funding has been provided for the research, please include the following sentence:

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

**Units**

Follow internationally accepted rules and conventions: use the international system of units (SI). If other units are mentioned, please give their equivalent in SI.

**Math formulae**

Please submit math equations as editable text and not as images. Present simple formulae in line with normal text where possible and use the solidus (/) instead of a horizontal line for small fractional terms, e.g., X/Y. In principle, variables are to be presented in italics. Powers of e are often more conveniently denoted by exp. Number consecutively any equations that have to be displayed separately from the text (if referred to explicitly in the text).

**Footnotes**

Footnotes should be used sparingly. Many word processors build footnotes into the text, and this feature may be used. Should this not be the case, indicate the position of footnotes in the text and present the footnotes themselves separately at the end of the article. Do not include footnotes in the Reference list.

**Artwork**

**Electronic Artwork**

**General points** Make sure you use uniform lettering and sizing of your original artwork. Embed the used fonts if the application provides that option. Aim to use the following fonts in your illustrations: Arial, Courier, Times New Roman, Symbol, or use fonts that look similar. Number the illustrations according to their sequence in the text. Use a logical naming convention for your artwork files. Provide captions to illustrations separately. Size the illustrations close to the desired dimensions of the published version. Submit each illustration as a separate file.
A detailed guide on electronic artwork is available. You are urged to visit this site; some excerpts from the detailed information are given here.

**Formats**

If your electronic artwork is created in a Microsoft Office application (Word, PowerPoint, Excel) then please supply 'as is' in the native document format. Regardless of the application used other than Microsoft Office, when your electronic artwork is finalized, please 'Save as' or convert the images to one of the following formats (note the resolution requirements for line drawings, halftones, and line/halftone combinations given below): EPS (or PDF): Vector drawings, embed all used fonts. TIFF (or JPEG): Color or grayscale photographs (halftones), keep to a minimum of 300 dpi. TIFF (or JPEG): Bitmapped (pure black & white pixels) line drawings, keep to a minimum of 1000 dpi. TIFF (or JPEG): Combinations bitmapped line/halftone (color or grayscale), keep to a minimum of 500 dpi.

**Please do not:** supply files that are optimized for screen use (e.g., GIF, BMP, PICT, WPG); these typically have a low number of pixels and limited set of colors supply files that are too low in resolution submit graphics that are disproportionately large for the content

**Color artwork**

Color figures are accepted and encouraged; however, the use of color will be used at the discretion of the Editor. If color images are to be reproduced in black and white, the contributor should submit the prints in black and white for best results.

**Tables**

A separate file is required for each table, including its number and title at the top and any notes at the end. The notes should provide definition of abbreviations used in the table and permission statement for use of any copyrighted materials. Tables should be formatted as Microsoft Word tables, not in any graphic format. A table may be continued on multiple pages if necessary; do not repeat column headers on the additional pages.

**Illustration services**

Elsevier's WebShop offers Illustration Services to authors preparing to submit a manuscript but concerned about the quality of the images accompanying their article. Elsevier's expert illustrators can produce scientific, technical and medical-style images, as well as a full range of charts, tables and graphs. Image 'polishing' is also available, where our illustrators take your image(s) and improve them to a professional standard. Please visit the website to find out more.

**Figure captions**

Ensure that each illustration has a caption. Supply captions separately, not attached to the figure. A caption should comprise a brief title (not on the figure itself) and a description of the illustration. Keep text in the illustrations themselves to a minimum but explain all symbols and abbreviations used.

**References**

**Citation in text**

Please ensure that every reference cited in the text is also present in the reference list (and vice versa). Any references cited in the abstract must be given in full. Unpublished results and personal communications are not recommended in the reference list, but may be mentioned in the text. If these references are included in the reference list they should follow the standard reference style of the journal and should include a substitution of the publication date with either 'Unpublished results' or 'Personal communication'. Citation of a reference as 'in press' implies that the item has been accepted for publication.

**Reference links**

Increased discoverability of research and high quality peer review are ensured by online links to the sources cited. In order to allow us to create links to abstracting and indexing services, such as Scopus, CrossRef and PubMed, please ensure that data provided in the references are correct. Please note that incorrect surnames, journal/book titles, publication year and pagination may prevent link creation. When copying references, please be careful as they may already contain errors. Use of the DOI is highly encouraged.
A DOI is guaranteed never to change, so you can use it as a permanent link to any electronic article. An example of a citation using DOI for an article not yet in an issue is: VanDecar J.C., Russo R.M., James D.E., Ambeh W.B., Franke M. (2003). Aseismic continuation of the Lesser Antilles slab beneath northeastern Venezuela. Journal of Geophysical Research, https://doi.org/10.1029/2001JB000884. Please note the format of such citations should be in the same style as all other references in the paper.

Web references
As a minimum, the full URL should be given and the date when the reference was last accessed. Any further information, if known (DOI, author names, dates, reference to a source publication, etc.), should also be given. Web references can be listed separately (e.g., after the reference list) under a different heading if desired, or can be included in the reference list.

Data references
This journal encourages you to cite underlying or relevant datasets in your manuscript by citing them in your text and including a data reference in your Reference List. Data references should include the following elements: author name(s), dataset title, data repository, version (where available), year, and global persistent identifier. Add [dataset] immediately before the reference so we can properly identify it as a data reference. The [dataset] identifier will not appear in your published article.

Reference management software
Most Elsevier journals have their reference template available in many of the most popular reference management software products. These include all products that support Citation Style Language styles, such as Mendeley. Using citation plug-ins from these products, authors only need to select the appropriate journal template when preparing their article, after which citations and bibliographies will be automatically formatted in the journal's style. If no template is yet available for this journal, please follow the format of the sample references and citations as shown in this Guide. If you use reference management software, please ensure that you remove all field codes before submitting the electronic manuscript. More information on how to remove field codes from different reference management software.

Users of Mendeley Desktop can easily install the reference style for this journal here. When preparing your manuscript, you will then be able to select this style using the Mendeley plug-ins for Microsoft Word or LibreOffice.

Reference style

Journal Article (one to three authors)

Journal Article (four or more authors)

Journal Article in Press

Complete Book

Chapter of Book

Chapter of Book That Is Part of Published Meeting

Chapter of Book That Is Part of Unpublished Meeting

Abstract

Letter to the Editor

Journal abbreviations source
Journal names should be abbreviated according to the List of Title Word Abbreviations.

Video
Elsevier accepts video material and animation sequences to support and enhance your scientific research. Authors who have video or animation files that they wish to submit with their article are strongly encouraged to include links to these within the body of the article. This can be done in the same way as a figure or table by referring to the video or animation content and noting in the body text where it should be placed. All submitted files should be properly labeled so that they directly relate to the video file's content. In order to ensure that your video or animation material is directly usable, please provide the file in one of our recommended file formats with a preferred maximum size of 150 MB per file, 1 GB in total. Video and animation files supplied will be published online in the electronic version of your article in Elsevier Web products, including ScienceDirect. Please supply 'stills' with your files: you can choose any frame from the video or animation or make a separate image. These will be used instead of standard icons and will personalize the link to your video data. For more detailed instructions please visit our video instruction pages. Note: since video and animation cannot be embedded in the print version of the journal, please provide text for both the electronic and the print version for the portions of the article that refer to this content.

Data visualization
Include interactive data visualizations in your publication and let your readers interact and engage more closely with your research. Follow the instructions here to find out about available data visualization options and how to include them with your article.

Supplementary material
Supplementary material such as applications, images and sound clips, can be published with your article to enhance it. Submitted supplementary items are published exactly as they are received (Excel or PowerPoint files will appear as such online). Please submit your material together with the article and supply a concise, descriptive caption for each supplementary file. If you wish to make changes to supplementary material during any stage of the process, please make sure to provide an updated file. Do not annotate any corrections on a previous version. Please switch off the 'Track Changes' option in Microsoft Office files as these will appear in the published version.

Research data
This journal encourages and enables you to share data that supports your research publication where appropriate, and enables you to interlink the data with your published articles. Research data refers to the results of observations or experimentation that validate research findings. To facilitate reproducibility and data reuse, this journal also encourages you to share your software, code, models, algorithms, protocols, methods and other useful materials related to the project.

Below are a number of ways in which you can associate data with your article or make a statement about the availability of your data when submitting your manuscript. If you are sharing data in one of these ways, you are encouraged to cite the data in your manuscript and reference list. Please refer to the "References" section for more information about data citation. For more information on depositing, sharing and using research data and other relevant research materials, visit the research data page.

Data linking
If you have made your research data available in a data repository, you can link your article directly to the dataset. Elsevier collaborates with a number of repositories to link articles on ScienceDirect with relevant repositories, giving readers access to underlying data that gives them a better understanding of the research described.
There are different ways to link your datasets to your article. When available, you can directly link your dataset to your article by providing the relevant information in the submission system. For more information, visit the database linking page.

For supported data repositories a repository banner will automatically appear next to your published article on ScienceDirect.

In addition, you can link to relevant data or entities through identifiers within the text of your manuscript, using the following format: Database: xxxx (e.g., TAIR: AT1G01020; CCDC: 734053; PDB: 1XFN).

**Mendeley Data**  
This journal supports Mendeley Data, enabling you to deposit any research data (including raw and processed data, video, code, software, algorithms, protocols, and methods) associated with your manuscript in a free-to-use, open access repository. During the submission process, after uploading your manuscript, you will have the opportunity to upload your relevant datasets directly to Mendeley Data. The datasets will be listed and directly accessible to readers next to your published article online.

For more information, visit the Mendeley Data for journals page.

**Data statement**  
To foster transparency, we encourage you to state the availability of your data in your submission. This may be a requirement of your funding body or institution. If your data is unavailable to access or unsuitable to post, you will have the opportunity to indicate why during the submission process, for example by stating that the research data is confidential. The statement will appear with your published article on ScienceDirect. For more information, visit the Data Statement page.

**AFTER ACCEPTANCE**

**Proofs**  
One set of page proofs (as PDF files) will be sent by e-mail to the corresponding author or a link will be provided in the e-mail so that authors can download the files themselves. Elsevier now provides authors with PDF proofs which can be annotated; for this you will need to download the free Adobe Reader, version 9 (or higher). Instructions on how to annotate PDF files will accompany the proofs (also given online). The exact system requirements are given at the Adobe site.

If you do not wish to use the PDF annotations function, you may list the corrections (including replies to the Query Form) and return them to Elsevier in an e-mail. Please list your corrections quoting line number. If, for any reason, this is not possible, then mark the corrections and any other comments (including replies to the Query Form) on a printout of your proof and scan the pages and return via e-mail. Please use this proof only for checking the typesetting, editing, completeness and correctness of the text, tables and figures. Significant changes to the article as accepted for publication will only be considered at this stage with permission from the Editor. We will do everything possible to get your article published quickly and accurately. It is important to ensure that all corrections are sent back to us in one communication. Please check carefully before replying, as inclusion of any subsequent corrections cannot be guaranteed. Proofreading is solely your responsibility.

**Reprints**  
Reprints of articles can be furnished to contributors when ordered in advance of publication. An order form is sent in advance of proofs. Individuals wishing to obtain reprints of an article that appears in the *Journal* can do so by contacting the author at the address given in the *Journal*. Electronic copies may be purchased from the Publisher.

**Cardiac Calendar**  
Announcements of meetings, conferences, and the like that are of interest to the readership of the Journal should be sent to the Section Editor for Cardiac Calendar, Dr. George Silvay (george.silvay@mountsinai.org), at least 4 months before the intended appearance of the notice. These announcements will be published only online.

**AUTHOR INQUIRIES**  
Visit the Elsevier Support Center to find the answers you need. Here you will find everything from Frequently Asked Questions to ways to get in touch.
You can also check the status of your submitted article or find out when your accepted article will be published.