DESCRIPTION

The American Heart Journal will consider for publication suitable articles on topics pertaining to the broad discipline of cardiovascular disease. Our goal is to provide the reader primary investigation, scholarly review, and opinion concerning the practice of cardiovascular medicine. We especially encourage submission of 3 types of reports that are not frequently seen in cardiovascular journals: negative clinical studies, reports on study designs, and studies involving the organization of medical care. The Journal does not accept individual case reports or original articles involving bench laboratory or animal research.

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

2018: 4.023 © Clarivate Analytics Journal Citation Reports 2019

ABSTRACTING AND INDEXING

Scopus

EDITORIAL BOARD

Editor-in-Chief:
Daniel Mark, Duke University School of Medicine, Durham, North Carolina, United States

Executive Editor:
Patricia K. Hodgson, DUKE CLINICAL RESEARCH INSTITUTE, North Carolina, United States

Managing Editor:
Rebecca L. Hines, DUKE CLINICAL RESEARCH INSTITUTE, Durham, North Carolina, United States
Journal Manager:
Ian Bertoldo, San Diego, California, USA

Associate Editors:
Tariq Ahmad, YALE UNIVERSITY SCHOOL OF MEDICINE, New Haven, Connecticut, United States
Sripal Bangalore, NEW YORK UNIVERSITY SCHOOL OF MEDICINE, New York, New York, United States
Thomas M. Bashore, Duke University Health System, Durham, North Carolina, United States
Gerald S. Bloomfield, Duke University, Durham, North Carolina, United States
Melissa Burroughs-Pena, University of California San Francisco, San Francisco, California, United States
Tara Chang, STANFORD UNIVERSITY SCHOOL OF MEDICINE, Palo Alto, California, United States
Melissa A. Daubert, Duke University, Durham, North Carolina, United States
Adam DeVore, Duke University, Durham, North Carolina, United States
Sean van Diepen, University of Alberta Hospital, Edmonton, Alberta, Canada
Sripal Bangalore, NEW YORK UNIVERSITY SCHOOL OF MEDICINE, New York, New York, United States
Justin Ezekowitz, University of Alberta Hospital, Edmonton, Alberta, Canada
Emil Fosbol, DUKE CLINICAL RESEARCH INSTITUTE, Durham, North Carolina, United States
J. Kevin Harrison, Duke University, Durham, North Carolina, United States
Paul A. Heidenreich, VETERANS AFFAIRS PALO ALTO HEALTH CARE SYSTEM, Palo Alto, California, United States
Kevin D. Hill, Duke University, Durham, North Carolina, United States
Padma Kaul, University of Alberta, Edmonton, Alberta, Canada
Jennifer S. Li, Duke University, Durham, North Carolina, United States
Renato D. Lopes, Duke University School of Medicine, Durham, North Carolina, United States
Kenneth W. Mahaffey, STANFORD UNIVERSITY, Stanford, California, United States
Robert McGarrah, Duke University, Durham, North Carolina, United States
Rajendra H. Mehta, DUKE CLINICAL RESEARCH INSTITUTE, United States
Jonathan D. Newman, NEW YORK UNIVERSITY SCHOOL OF MEDICINE, New York, New York, United States
Manesh R. Patel, Duke University, Durham, North Carolina, United States
Jonathan P. Piccini, Duke University, Durham, North Carolina, United States
Sudarshan Rajagopal, MD, Duke University, Durham, North Carolina, United States
Matthew T. Roe, DUKE CLINICAL RESEARCH INSTITUTE, Durham, North Carolina, United States
Zainab Samad, Duke University School of Medicine, Durham, North Carolina, United States
Matthew Sherwood, INOVA HEALTH SYSTEM, Falls Church, Virginia, United States

Editorial Board:
David Aguilar
Frank V. Aguirre
Hussein Al-Khalidi
Sana M. Al-Khatib
John H. Alexander
Karen P. Alexander
Larry A. Allen
Kevin J. Anstrom
Paul W. Armstrong
Wilbert S. Aronow
Alvaro Avezum
Akshay Bagai
Steven R. Bailey
Subhash Banerjee
Gust H. Bardy
Piers Barker
Gregory W. Barsness
Eric R. Bates
Jeroen J. Bax
Richard C. Becker
George A. Beller
Jeffrey S. Berger
Deepak L. Bhatt
Kenneth Bilchick
Philip F. Binkley
John A. Bittl
Vera Bittner
Roger S. Blumenthal
Eric Boersma
Sorin J. Brener
Ralph G. Brindis
Christopher E.H. Buller
T. Jared Bunch
Javed Butler
Alfred E. Buxton
Christopher P. Cannon
Warren J. Cantor
Blase A. Carabello
Matthew Cavender
Mark Y. Chan
W. Randolph Chitwood, Jr
David J. Cohen
Marc Cohen
Mauricio G. Cohen
Adrian Coles
Stuart J. Connolly
Patricia Cowper
Anne B. Curtis
James P. Daubert
Charles J. Davidson
Elizabeth R. DeLong
J. Michael DiMaio
Pamela S. Douglas
Shannon Dunlay
Vladimir Dzavik
Kim A. Eagle
Zubin Eapen
Ismail El-Hamamsy
Kenneth A. Ellenbogen
Stephen G. Ellis
David P. Faxon
G. Michael Felker
T. Bruce Ferguson, Jr.
Jerome L. Fleg
Gregg C. Fonarow
Christopher Fordyce
Gary S. Francis
James Freeman
John K. French
Thomas C. Gerber
Bernard J. Gersh
Jeffrey B. Geske
Jalal K. Ghali
Raymond J. Gibbons
C. Michael Gibson
Ian Gilchrist
Robert P. Giugliano
Donald D. Glower
Christopher B. Granger
Anna Gundlud
Paul A. Gurbel
Hitinder S. Gurm
John R. Guyton
Bradley Hammill
Frank E. Harrell, Jr.
Robert A. Harrington
David Hasdai
Edward P. Havranek
Robert C. Hendel
Timothy D. Henry
Adrian F. Hernandez
Charles A. Herzog
Connie N. Hess
Paul Hess
James A. Hill
Mark A. Hlatky
Judith S. Hochman
David R. Holmes, Jr.
Michael P. Hudson
Alice K. Jacobs
Stefan James
James L. Januzzi
Marc E. Jolicoeur
William Schuyler Jones
David E. Kandzari
Adnan Kastrati
Dean J. Kereiakes
Morton J. Kern
Prateeti Khazanie
Michel G. Khour
Ajay J. Kirtane
Neal S. Kleiman
George J. Klein
Robb Kociol
Richard A. Krasuski
William E. Kraus
Joseph Ladapo
Gervasio A. Lamas
Kerry L. Lee
Thomas H. Lee, Jr.
Sergio Leonardi
A. Michael Lincoff
Gregory Y.H. Lip
James E. Lock
Yuliya Lokhnygina
Jared Magnani
Thomas H. Marwick
Frederick A. Masoudi
Charles Maynard
Darren K. McGuire
Venugopal Menon
George A. Mensah
Robert E. Michler
Julie M. Miller
Todd D. Miller
David J. Moliterno
Fred Morady
David Morrow
Joseph Brent Muhlestein
Debrabra Mukherjee
Brahmajeet Nallamothu
Ann Marie Navar
L. Kristin Newby
Peter A. Noseworthy
Emily C. O’Brien
Sean M. O’Brien
Christopher M. O’Connor
Michelle O’Shaughnessy
E. Magnus Ohman
Peter M. Okin
Brian Olshansky
Catherine M. Otto
Douglas L. Packer
Richard L. Page
Neha Pagidipati
Chetan Patel
Carl J. Pepine
John L. Petersen II
Eric D. Peterson
Pamela N. Peterson
Marc A. Pfeffer
Matthias E. Pfisterer
Louise Pilote
Bertram Pitt
Sean D. Pokorney
Jeanne E. Poole
Jeffrey J. Popma
Thomas Povsic
GUIDE FOR AUTHORS

Your Paper Your Way
We now differentiate between the requirements for new and revised submissions. You may choose to submit your manuscript as a single Word or PDF file to be used in the refereeing process. Only when your paper is at the revision stage, will you be requested to put your paper in to a 'correct format' for acceptance and provide the items required for the publication of your article.

To find out more, please visit the Preparation section below.

Editor in Chief: Daniel B. Mark, MD, MPH
Executive Editor: Patricia K. Hodgson
Managing Editor: Rebecca L. Hines E-mail: AHJ@dm.duke.edu

American Heart Journal
Duke Clinical Research Institute
Telephone: 919-668-5948
Fax: 919-668-7046
E-mail: AHJ@dm.duke.edu

Information for Authors
All articles except letters to the editor and supplements must be submitted online at http://ees.elsevier.com/ahj. The American Heart Journal no longer accepts submissions by mail. Letters to the editor must be submitted directly to Rebecca L. Hines, Managing Editor, at AHJ@dm.duke.edu. Supplement proposals must be submitted to Craig Smith at C.Smith@Elsevier.com. The Journal will consider for publication suitable articles on topics pertaining to the broad discipline of cardiovascular disease. Our goal is to provide the reader with primary investigation, scholarly review, and opinion concerning the practice of cardiovascular medicine. We especially encourage submission of 3 types of reports that are not frequently seen in cardiovascular journals: negative clinical studies, reports on study designs, and studies involving the organization of medical care. (For more information, see "What We Publish in the American Heart Journal and Why," by Daniel B. Mark, MD, MPH, [Am Heart J 2007;154:1-2].) The Journal does not accept individual case reports or original articles involving bench laboratory or animal research. All communications relating to the editorial management of the Journal should be sent to Rebecca L. Hines, Managing Editor, at AHJ@dm.duke.edu.

Editorial policies. Statements and opinions expressed in the Journal are those of the author(s) and not necessarily those of the Editor(s) or publisher, and the Editor(s) and publisher disclaim any responsibility or liability for such material. Neither the Editor(s) nor the publisher guarantees, warrants, or endorses any product or service advertised in this publication; neither do they guarantee any claim made by the manufacturer of such product or service. In accordance with the Copyright Act of 1976, which became effective January 1, 1978, the following statement signed by all authors must accompany each manuscript accepted for publication: "The undersigned author(s) transfer all copyright ownership of the manuscript [title of article] to Elsevier Inc., in the event the work is published. The undersigned warrant(s) that the article is original, does not infringe upon any copyright or other proprietary right of any third party, is not under consideration by another journal, and has not been published previously." When a manuscript is accepted for publication, the Copyright Release Form will be issued to authors from the publisher.

Review. All articles are pre-screened by the Editors and Associate Editors. Papers felt not to be competitive for publication or papers not consistent with the editorial priorities of the American Heart Journal will be returned to the authors without review within 4 weeks of submission. All other articles are reviewed by external referees. Acceptance is based on signficance, originality, and validity of the material. If the article is accepted for publication, editorial revisions may be made to aid clarity and understanding without altering the meaning.

Sections. The following sections are established features of the Journal. To ensure that the manuscript is considered for one of the following sections, the name of the intended section should appear at the top of the title page.

Clinical Investigations. Original, in-depth clinical investigations.

Curriculum in Cardiology. Concise, comprehensive, contemporary articles presenting core, updated information necessary for the continuing medical education of the modern clinical cardiologist.
Progress in Cardiology. Concise and comprehensive articles devoted to innovative new areas of development in cardiovascular diseases important to the clinical cardiologist.

Trial Designs. Efficient but thorough descriptions of study protocols, including the conceptual issues underlying the hypotheses, the methodology, and planned analysis of a trial. An important part of the evaluation of trial design papers pertains to the likely ability of the investigators to complete the trial as planned. Papers should include target sample size information along with a timeline for enrollment and follow-up. If the trial has already begun enrollment, provide number of patients enrolled as of the date of manuscript submission.

Research Letters. Short, original research articles or brief reports of up to 1500 words and with up to 12 references. May contain up to 3 figures or tables. A short abstract of three sentences or less describing the objective of the letter is permitted. Online supplemental material is permitted, particularly for additional relevant methods or results.

Letters to the Editor. Brief letters or notes to the Editor regarding published material or information of timely interest. Letters to the Editor should concern only articles that have been published recently in the Journal. A response to the letter will be requested from the authors of the article in question, and both the letter and the response will be published together. Letters to the Editor must be submitted by e-mail to Rebecca L. Hines, Managing Editor, at AHJ@dm.duke.edu. Letters will be published on the Journal's Website only.

Editorials. Brief, substantiated commentary on special subjects.

Supplements. Symposia are considered for publication on the basis of importance of topic, expertise of participants, and scientific quality of articles presented. All supplements undergo peer review. Proprietary sponsorship must be indicated. Supplement proposals must be submitted by e-mail to Craig Smith at C.Smith@Elsevier.com.

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 designated as the corresponding author with contact details:
• E-mail address
• Full postal address

All necessary files have been uploaded:
Manuscript:
• Include keywords
• All figures (include relevant captions)
• All tables (including titles, description, footnotes)
• Ensure all figure and table citations in the text match the files provided
• Indicate clearly if color should be used for any figures in print

Graphical Abstracts / Highlights files (where applicable)
Supplemental files (where applicable)

Further considerations
• Manuscript has been 'spell checked' and 'grammar checked'
• All references mentioned in the Reference List are cited in the text, and vice versa
• Permission has been obtained for use of copyrighted material from other sources (including the Internet)
• A competing interests statement is provided, even if the authors have no competing interests to declare
• Journal policies detailed in this guide have been reviewed
• Referee suggestions and contact details provided, based on journal requirements

For further information, visit our Support Center.
BEFORE YOU BEGIN

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
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.

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').

Author contributions
For transparency, we encourage authors to submit an author statement file outlining their individual contributions to the paper using the relevant CRediT roles: Conceptualization; Data curation; Formal analysis; Funding acquisition; Investigation; Methodology; Project administration; Resources; Software; Supervision; Validation; Visualization; Roles/Writing - original draft; Writing - review & editing. Authorship statements should be formatted with the names of authors first and CRediT role(s) following. More details and an example

Registration of randomized clinical trials. Any manuscript submitted to the Journal that concerns the design or results of a randomized clinical trial must include the registration site (such as www.clinicaltrials.gov) and the registration number in the Methods section.

Article transfer service
This journal is part of our Article Transfer Service. This means that if the Editor feels your article is more suitable in one of our other participating journals, then you may be asked to consider transferring the article to one of those. If you agree, your article will be transferred automatically on your behalf with no need to reformat. Please note that your article will be reviewed again by the new journal. More information.

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.

**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, lets 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.

**Open access.** This journal offers you the option of making your article freely available via the ScienceDirect platform. To prevent any conflict of interest, you can make this choice only after receiving notification that your article has been accepted for publication. The fee of $3,000 excludes taxes and other potential author fees such as color charges. In some cases, institutions and funding bodies have entered into agreement with Elsevier to meet these fees on behalf of their authors. Details of these agreements are available at https://www.elsevier.com/fundingbodies. Authors of accepted articles who wish to take advantage of this option should complete and submit the order form (available at https://www.elsevier.com/locate/openaccessform.pdf). Whatever access option you choose, you retain many rights as an author, including the right to post a revised personal version of your article on your own website. More information can be found here: https://www.elsevier.com/authorsrights.
The gold open access publication fee for this journal is **USD 3400**, 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/openaccess)

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.

*Human research.* Authors should identify that informed consent was obtained when applicable. The manuscript should also include the notation that the study was approved by the institutional committee on human research. Photographs of identifiable persons must be accompanied by signed releases showing informed consent. These should be included at the time of manuscript submission.

**Submission**

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. Editable files (e.g., Word, LaTex) are required to typeset your article for final publication. All correspondence, including notification of the Editor's decision and requests for revision, is sent by e-mail.

*Submit your article*

Please submit your article via [http://ees.elsevier.com/ahj](http://ees.elsevier.com/ahj).

**Preparation of manuscripts.** Only original manuscripts will be considered for publication. Correct preparation of the manuscript by the authors will expedite the review and publication procedures. Please note the following requirements. Following the instructions for online submission at [http://ees.elsevier.com/ahj](http://ees.elsevier.com/ahj), the article, including all tables, should be formatted in Microsoft Word. The use of appropriate subheadings throughout the body of the text (Methods, Results, and Discussion sections) is required. Figures and illustrations must also be submitted electronically as separate files. File specifications are listed below in "Illustrations, figures, and legends."

**NEW SUBMISSIONS**

Submission to this journal proceeds totally online and you will be guided stepwise through the creation and uploading of your files. The system automatically converts your files to a single PDF file, which is used in the peer-review process.

As part of the Your Paper Your Way service, you may choose to submit your manuscript as a single file to be used in the refereeing process. This can be a PDF file or a Word document, in any format or layout that can be used by referees to evaluate your manuscript. It should contain high enough quality figures for refereeing. If you prefer to do so, you may still provide all or some of the source files at the initial submission. Please note that individual figure files larger than 10 MB must be uploaded separately.

**References**

There are no strict requirements on reference formatting at submission. References can be in any style or format as long as the style is consistent. Where applicable, author(s) name(s), journal title/book title, chapter title/article title, year of publication, volume number/book chapter and the article number or pagination must be present. Use of DOI is highly encouraged. The reference style used by the journal will be applied to the accepted article by Elsevier at the proof stage. Note that missing data will be highlighted at proof stage for the author to correct.
Formatting requirements
There are no strict formatting requirements but all manuscripts must contain the essential elements needed to convey your manuscript, for example Abstract, Keywords, Introduction, Materials and Methods, Results, Conclusions, Artwork and Tables with Captions.
If your article includes any Videos and/or other Supplementary material, this should be included in your initial submission for peer review purposes.
Divide the article into clearly defined sections.

Figures and tables embedded in text
Please ensure the figures and the tables included in the single file are placed next to the relevant text in the manuscript, rather than at the bottom or the top of the file. The corresponding caption should be placed directly below the figure or table.

Peer review
This journal operates a single blind review process. All contributions will be initially assessed by the editor for suitability for the journal. Papers deemed suitable are then typically sent to a minimum of two independent expert reviewers to assess the scientific quality of the paper. The Editor is responsible for the final decision regarding acceptance or rejection of articles. The Editor's decision is final. More information on types of peer review.

REVISED SUBMISSIONS
Use of word processing software
Regardless of the file format of the original submission, at revision you must provide us with an editable file of the entire article. Keep the layout of the text as simple as possible. Most formatting codes will be removed and replaced on processing the article. The electronic text should be prepared in a way very similar to that of conventional manuscripts (see also the Guide to Publishing with Elsevier). 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.

Style. Manuscripts must conform to acceptable English usage. Standard abbreviations should be used consistently throughout the article. Abbreviations should be spelled out the first time they appear in the text and followed in parentheses by the abbreviation. Consult the latest editions of Scientific Style and Format by the Council of Biology Editors, The Chicago Manual of Style by The University of Chicago Press, or the AMA’s Manual of Style, 9th edition, for current usage.

Pagination. Begin numbering with the title page as page 1, the structured abstract page as page 2, and continue throughout the references, figure legends, and tables. Place page numbers on each page.

Title page. The title page should be typed double-spaced and should include the title, authors' full names, highest earned academic degrees, institutional affiliations and location, and a short, abbreviated title of 40 characters or fewer. Designate one author (provide address, business telephone and fax numbers, and e-mail address) to receive correspondence, galley proofs, and reprint requests. This journal publishes author-accepted manuscripts online; therefore, do not include in the manuscript any information such as home telephone number that you do not wish to be made publicly available.

Highlights
Highlights are mandatory for this journal as they help increase the discoverability of your article via search engines. They consist of a short collection of bullet points that capture the novel results of your research as well as new methods that were used during the study (if any). Please have a look at the examples here: example Highlights.

Highlights should be submitted in a separate editable file in the online submission system. Please use 'Highlights' in the file name and include 3 to 5 bullet points (maximum 85 characters, including spaces, per bullet point).

Structured abstract. Each article must include a structured abstract of no more than 250 words. Use the following headings for sections of the abstract: Background, Methods, Results, Conclusions. The abstract may not contain data not presented in the manuscript. For review articles and trial designs, in place of a structured abstract, please provide a summary abstract paragraph (maximum word count 250 words). If abstract subheadings are not appropriate, they may be omitted.
Graphical abstract
Although a graphical abstract is optional, its use is encouraged as it draws more attention to the online article. The graphical abstract should summarize the contents of the article in a concise, pictorial form designed to capture the attention of a wide readership. Graphical abstracts should be submitted as a separate file in the online submission system. Image size: Please provide an image with a minimum of 531 × 1328 pixels (h × w) or proportionally more. The image should be readable at a size of 5 × 13 cm using a regular screen resolution of 96 dpi. Preferred file types: TIFF, EPS, PDF or MS Office files. You can view Example Graphical Abstracts on our information site. Authors can make use of Elsevier's Illustration Services to ensure the best presentation of their images and in accordance with all technical requirements.

Acknowledgements
Collate acknowledgements in a separate section at the end of the article before the references and do not, therefore, include them on the title page, as a footnote to the title or otherwise. List here those individuals who provided help during the research (e.g., providing language help, writing assistance or proof reading the article, etc.).

Footnotes
Footnotes should be used sparingly. Number them consecutively throughout the article. 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.

Artwork
Electronic artwork
General points
• Make sure you use uniform lettering and sizing of your original artwork.
• Preferred fonts: Arial (or Helvetica), Times New Roman (or Times), Symbol, Courier.
• Number the illustrations according to their sequence in the text.
• Use a logical naming convention for your artwork files.
• Indicate per figure if it is a single, 1.5 or 2-column fitting image.
• For Word submissions only, you may still provide figures and their captions, and tables within a single file at the revision stage.
• Please note that individual figure files larger than 10 MB must be provided in separate source files.
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
Regardless of the application used, 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 the font or save the text as 'graphics'.
TIFF (or JPEG): Color or grayscale photographs (halftones): always use a minimum of 300 dpi.
TIFF (or JPEG): Bitmapped line drawings: use a minimum of 1000 dpi.
TIFF (or JPEG): Combinations bitmapped line/half-tone (color or grayscale): a minimum of 500 dpi is required.

Please do not:
• Supply files that are optimized for screen use (e.g., GIF, BMP, PICT, WPG); the resolution is too low.
• Supply files that are too low in resolution.
• Submit graphics that are disproportionately large for the content.

Color artwork
Please make sure that artwork files are in an acceptable format (TIFF (or JPEG), EPS (or PDF), or MS Office files) and with the correct resolution. If, together with your accepted article, you submit usable color figures then Elsevier will ensure, at no additional charge, that these figures will appear in color online (e.g., ScienceDirect and other sites) regardless of whether or not these illustrations are reproduced in color in the printed version. For color reproduction in print, you will receive information regarding the costs from Elsevier after receipt of your accepted article. Please indicate your preference for color: in print or online only. Further information on the preparation of electronic artwork.
If a figure has been taken from previously copyrighted material, the legend must give full credit to the original source and letters of permission must be submitted with the manuscript. Articles appear in both the print and online versions of the Journal, and wording of the letter should specify permission in both forms of media. Failure to get electronic permission rights may result in the images not appearing in the online version.

Figure captions
Ensure that each illustration has a caption. 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.

Tables. Tables should be self-explanatory and numbered in Roman numerals in the order of their mention in the text. Provide a brief title for each. Type each double-spaced on a separate page. Abbreviations should be defined in a double-spaced footnote at the end of the table. If any material in a table or a table itself has been taken from previously copyrighted material, a double-spaced footnote must give full credit to the original source and permission of the copyright holder must be obtained. Include letters of permission at the time of manuscript submission.

Footnotes that require symbols must use those that are appropriate for the Journal. The accepted symbols, in the order in which they should appear within the table and within the footnotes, are: *, †, ‡, §, ||, ¶, #, **, ††, etc.

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 by clicking the following link:
http://open.mendeley.com/use-citation-style/american-heart-journal
When preparing your manuscript, you will then be able to select this style using the Mendeley plug-ins for Microsoft Word or LibreOffice.

Reference formatting
There are no strict requirements on reference formatting at submission. References can be in any style or format as long as the style is consistent. Where applicable, author(s) name(s), journal title/book title, chapter title/article title, year of publication, volume number/book chapter and the article number or pagination must be present. Use of DOI is highly encouraged. The reference style used by the journal will be applied to the accepted article by Elsevier at the proof stage. Note that missing data will be highlighted at proof stage for the author to correct. If you do wish to format the references yourself they should be arranged according to the following examples:

Reference style
References. The reference list must be numbered serially in the order in which the references appear in the text and typed double-spaced on separate sheets. Reference format should conform to the "Uniform Requirements for Manuscripts Submitted to Biomedical Journals" (Ann Intern Med 1997;126:36-47 or http://www.icmje.org ). Reference citations to periodicals should include, in the following order: names of the first 3 authors (and et al as necessary to signify any additional authors), title, journal, year, volume, and pages; for example, Hope RR, Scherlag BJ, Lazzara R. Excitation of ischemic myocardium: altered properties of conduction, refractoriness, and excitability. Am Heart J 1980;99:753-65. Journal abbreviations must follow the style used in Cumulated Index Medicus.
references should include, in the following order: names of the first 3 authors, chapter title, editor(s), book title, volume (if any), edition (if any), city, publisher, year, and inclusive pages of citation (if any); for example, Sherry S. Detection of thrombi. In: Strauss HE, Pitt B, James AE, editors. Cardiovascular nuclear medicine. St. Louis: Mosby; 1974. p. 273-85. Unpublished data and personal communications may be cited in the text but not as references. Authors are responsible for the accuracy of references.

**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.

**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

Online proof correction
Corresponding authors will receive an e-mail with a link to our online proofing system, allowing annotation and correction of proofs online. The environment is similar to MS Word: in addition to editing text, you can also comment on figures/tables and answer questions from the Copy Editor. Web-based proofing provides a faster and less error-prone process by allowing you to directly type your corrections, eliminating the potential introduction of errors.
If preferred, you can still choose to annotate and upload your edits on the PDF version. All instructions for proofing will be given in the e-mail we send to authors, including alternative methods to the online version and PDF.
We will do everything possible to get your article published quickly and accurately. 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. 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.
Once an article is published online as an Article in Press, no further corrections can be made to the article, except as an erratum or corrigendum, and then only at the Editor’s discretion to correct a scientific error.

Reprints. Single reprints must be obtained from the author. Reprint order forms will be sent to authors along with their galley pages.

AUTHOR INQUIRIES
For inquiries relating to the submission of articles (including electronic submission) please visit this journal’s homepage (https://www.journals.elsevier.com/american-heart-journal). For detailed instructions on the preparation of electronic artwork, please visit https://www.elsevier.com/artworkinstructions. Contact details for questions arising after acceptance of an article, especially those relating to proofs, will be provided by the publisher. You can track accepted articles at https://www.elsevier.com/trackarticle. You can also check our Author FAQs at https://www.elsevier.com/authorFAQ and/or contact our Support Center.

© Copyright 2018 Elsevier | https://www.elsevier.com